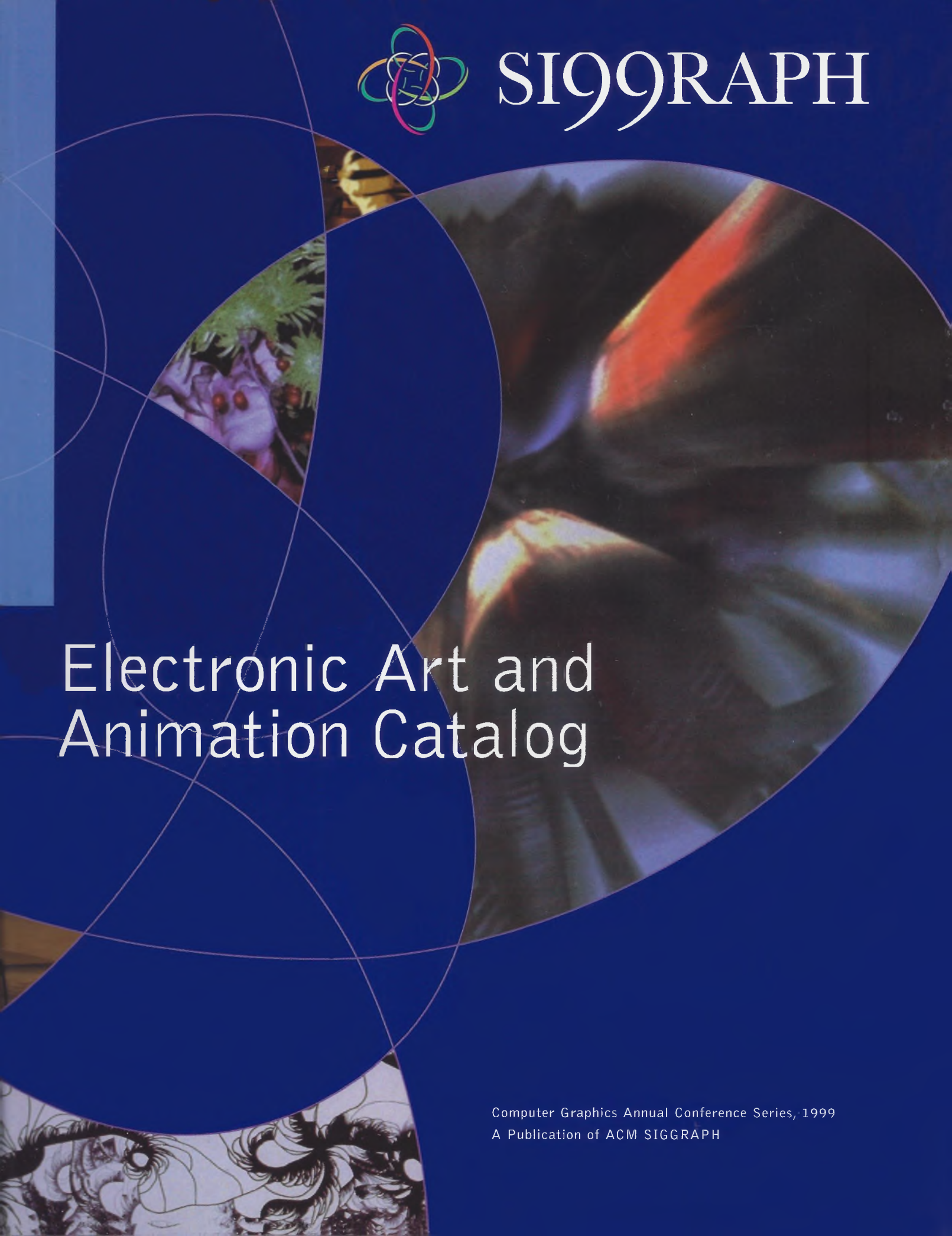

SIGGRAPH

Electronic Art and Animation Catalog

Computer Graphics Annual Conference Series, 1999
A Publication of ACM SIGGRAPH

SIGGRAPH

Electronic Art and Animation Catalog

Art Gallery: techn0asis

Marla Schweppe
Rochester Institute of Technology

Computer Animation Festival

Brian Blau
SGI

Computer Graphics Annual Conference Series, 1999
A Publication of ACM SIGGRAPH

Electronic Art and Animation Catalog

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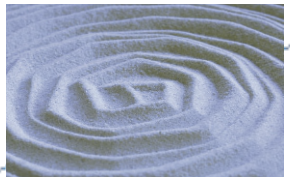
Art Gallery: techn0asis

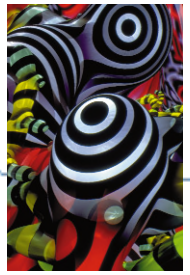
4

Computer Animation Festival

100



Art Gallery: techn0asis



Contents

Create

The SIGGRAPH 99 Art Gallery: techn0asis presents 100+ artworks including digital paintings, drawings, photographs, sculpture, installations, Web-based projects, animations, and site-specific works. For the first time, experienced docents guide tours through the gallery providing insights into the artists' visions and methods. In gallery talks throughout the week, the artists themselves offer further insight and opportunities for direct interaction with attendees.

The concepts of this years' installations integrate well into the techn0asis, with elements like water, sand, and light. Participants interact with each other, with digital beings, and with objects via intriguing means: movement through space, the pulse, a net, the placement of a cup on the table. A silver ball slowly draws patterns in the sand. Approach some "paintings," and you will be transported into another world.

SIGGRAPH 98 initiated ARTsite for Web-based artwork: new forms of artistic expression that wrap around and extend beyond the Web. This year's site is available remotely via the Internet before, during, and after the conference, online in the Art Gallery and the Creative Applications Lab during the conference. Some of the works utilize features unique to the Web to create a sense of community, connectivity, and interactivity. In some, the method of exploration applies chance and disorientation to parallel the content. Some have powerful imagery, concepts, sound, and structure, and clever writing. All are strong examples of electronic art delivered on the Web.

Each artist takes a unique approach to generating two-dimensional artwork digitally. The show includes digitally inspired painting, collages, algorithmically generated image components, images created with X-rays, in 3D software, with "digital" lights or produced on a plotter. The variety is tantalizing.

Imagination

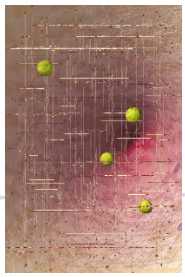
Artists' imaginations run wild with creativity. As an audience, we experience the variety of experiments performed by these artists to communicate ideas. The questions to ask as you experience techn0asis are:

What idea, thought, or vision is the artist communicating to me?

Do I understand or am I confused?

If you attend the conference, enjoy the work and the space in the first person. If you are looking at this catalog after the event, imagine the opportunity to experience the creative energy of over100 artists working with digital technology in the last year of the century. Reflect on the incredible developments in the digital art world in the past 50 years.

All of us on the Art Gallery: techn0asis Committee invite you to explore these questions and their answers during and after SIGGRAPH 99. We have enjoyed working with the artists who raise them, and with each other, to present techn0asis to the international computer graphic community.



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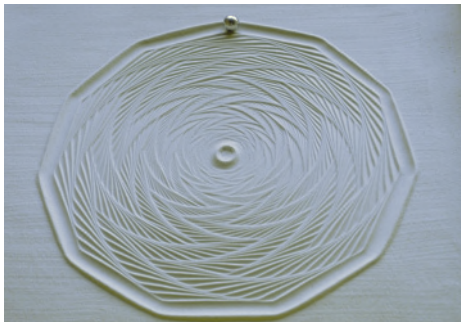
Sisyphus
1998
Sand
1 foot x 3 feet x 3 feet

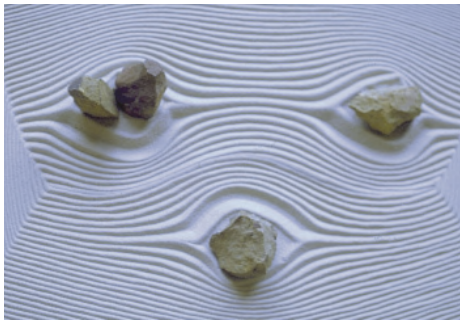
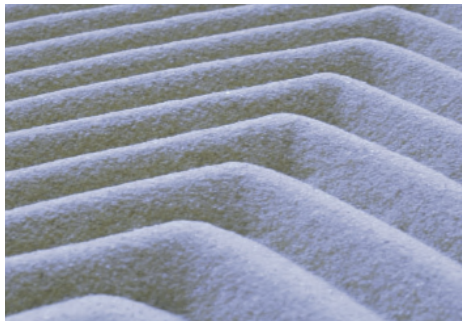
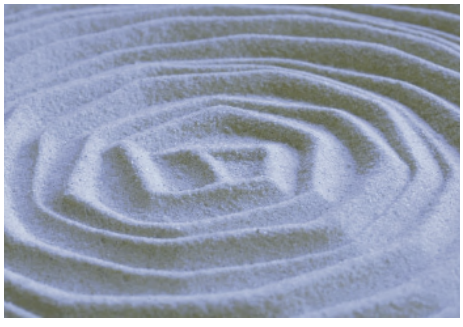
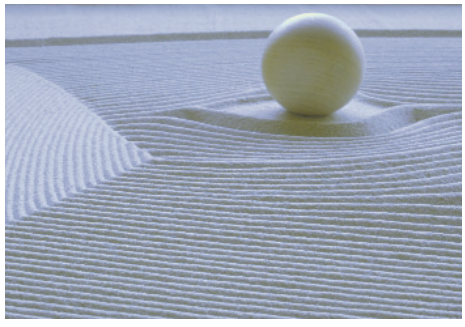
Sisyphus is a quiet piece. It inspires awe and calm. It is an invitation to relax, at best an encouragement to meditate. It continues sacred or spiritual traditions, but it takes advantage of the means and resources of our time.

The work extends humanity's old habit of scratching the surface of the earth and working with sand. It also refers to our history of patterns and designs, from Aegean spirals to modern geometries.

At rest, *Sisyphus* is an innocent sand box. But it contains mechanisms, controls, and software that animate and shape its surface. It displays unprecedented skills and aptitudes to create original etchings in plays of sand and light and shadows, of geometries and colours. As each piece unfolds, it opens a new space of consciousness and inspiration.

Sisyphus





Composition on the Table is a series of artwork which represent the concept of Mixed Reality. Four white tables have various user interfaces such as switches, dials, turn-tables and sliding boards that a player can touch. Projectors suspended from the ceiling project computer generated images onto the tables and interfaces. Projected images change in real time as if they were physically attached to the interfaces when players operate them. Also sounds are produced in relation to the movement of images. Since the interfaces have close relation to the reaction of images, players can operate images and sounds in the same way when he/she operates ordinary interfaces and gradually feels these illusions as equivalent as the actual objects.

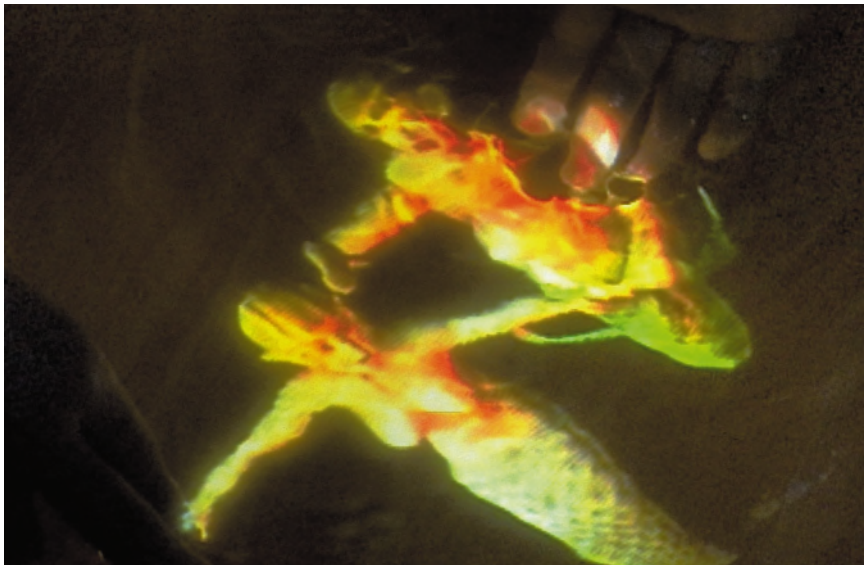
The aim of these works is to allow players and audiences to share the world of Mixed Reality thus produced and collaborate to create images and sounds interactively.

Composition

Toshio Iwai

Composition on the Table
No.1 [PUSH], No.2 [TWIST],
No.3 [TURN], No.4 [SLIDE]
1999
Interactive Installation
4500mm x 8000mm x 8000mm

Unconscious Flow
1999
Interactive Installation
5 x 5 x 5



Naoko Tosa

Supported by SONY-Kihara Research Center, Inc.

In face-to-face communication, the occasional need for intentional lies is something with which everyone can identify. For example, when we get angry, circumstances may force us to put on a smile instead of expressing our anger. When we feel miserable, good manners may dictate that we greet others warmly. In short, to abide by social norms, we consciously lie. On the other hand, if we consider the signs that our bodies express as communication (body language), we can say that the body does not lie even while the mind does.

Unconscious Flow "touches the heart" in a somewhat Japanese way by measuring the heartbeat of the "honest" body and using other technologies to reveal a new code of non-verbal communication from a hidden dimension in society. The artist calls this "techno-healing art."

Two computer-generated mermaids function as individual agents for two viewers. Each mermaid agent moves in sync with the heart rate detected by an electrode attached to the collarbone of its viewer. Then, using a synchronization interaction model that calculates the mutual heart rate on a personal computer, the two mermaids express hidden non-verbal communication. The data of relax-strain calculated from the heart rate and the interest calculated from the variation in the heart rate are mapped on the model. The synchronization interaction model reveals the communication codes in the hidden dimension that do not appear in our superficial communication.

For example, when two persons are in a situation where they are highly strained and highly interested, they are assumed to have stress and feelings of shyness, and the animation generates CG-reactive embodiments that behave shyly. When both people are in a situation where they are highly strained and less interested, unfriendly communication is generated.

For a high degree of synchronism, the agents mimic the hand gestures of their subjects. For a low degree of synchronism, the agents run away. When one mermaid agent touches the other, a pseudo-touch can be felt through a vibration device. For background sound, the heart sounds of the subjects are picked up by an electronic stethoscope and processed for output on a personal computer.

Flow

Fisherman's Café
1998
Interactive Installation
4m x 5 -6m x 5m

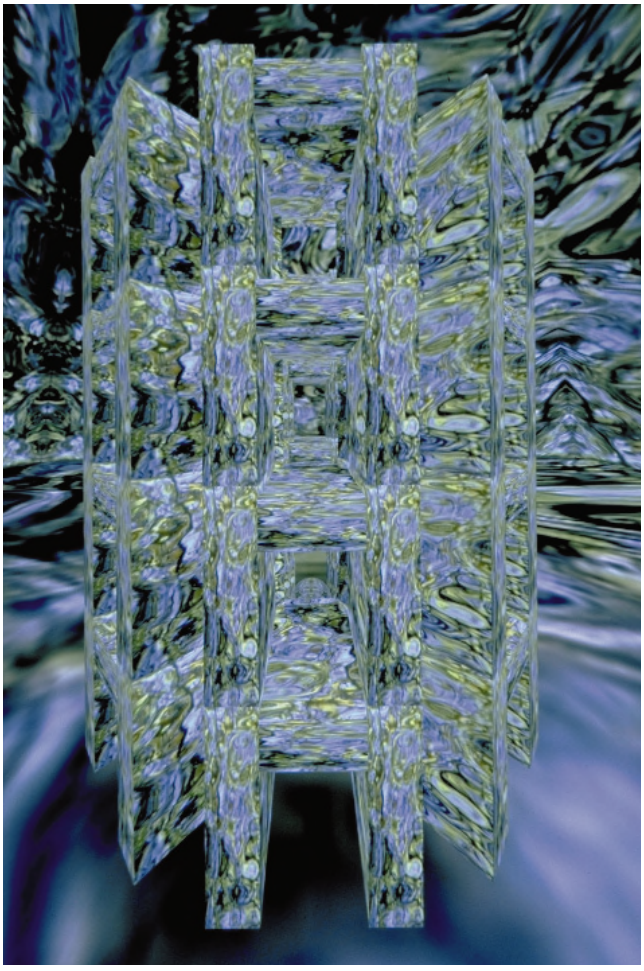
Café

A new subconscious feeling is born when people drinking coffee at a table in a café see the visible aqua symbol representing the interval of sequence in their body language. A cup placed on the table leaves simulated circular water waves. At the same time, a small shadow fish appears and swims toward the other cups or, if it is alone, around the table and back. The movement of the shadow fish is affected by the number of participants and their activities. Up to four participants can experience both worlds, conscious and subconscious, simultaneously in the interactive installation.

Kaeko Murata
Eiji Yamauchi

International Academy of Media Arts and Sciences

Liquid Meditation
1997
CAVE Virtual Reality Installation
10 feet x 10 feet x 10 feet



Margaret Watson

Within *Liquid Meditation,* an immersant encounters abstract water reflections in a unique architecture that expresses a narrative philosophy. As the immersant journeys through the structure, meditative experiences within the reflections foretell the upcoming revelation.Conclusion of the narrative is based on individual navigational choices within the virtual experience.

As a philosophical narrative, this virtual experience is representative of growth in life. Various elements in the narrative structure express a scenario symbolic of attaining awareness. In virtual reality, abstract concepts can be visualized and reality can be re-experienced from a first-hand perspective. Through experience with these concepts in a virtual world, immersants could potentially achieve renewed awareness of their existence in reality.

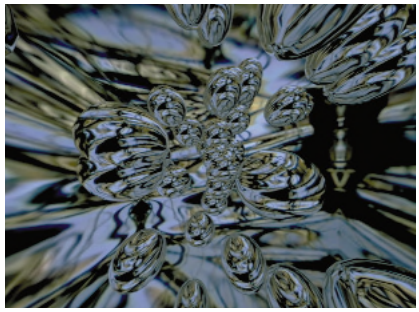
Art Concept and Realization
Margaret Watson

Sound Design and Musical Composition
Eric Butkus

Graphics and Audio Implementation
Margaret Watson

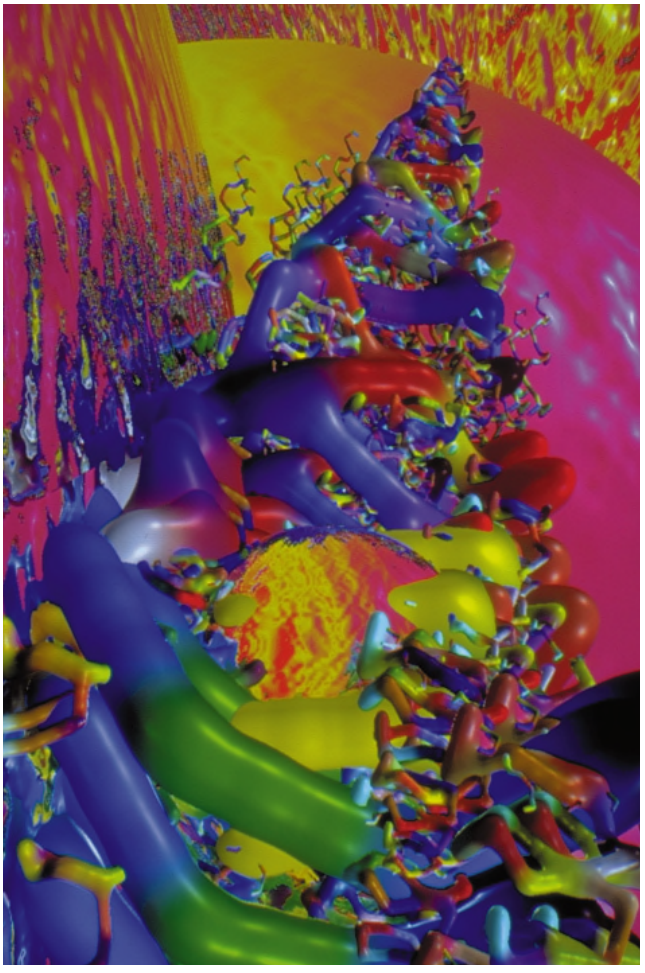
Production
Electronic Visualization Laboratory,
University of Illinois at Chicago

Ars Electronica Research & Residence Program



Yoichiro Kawaguchi

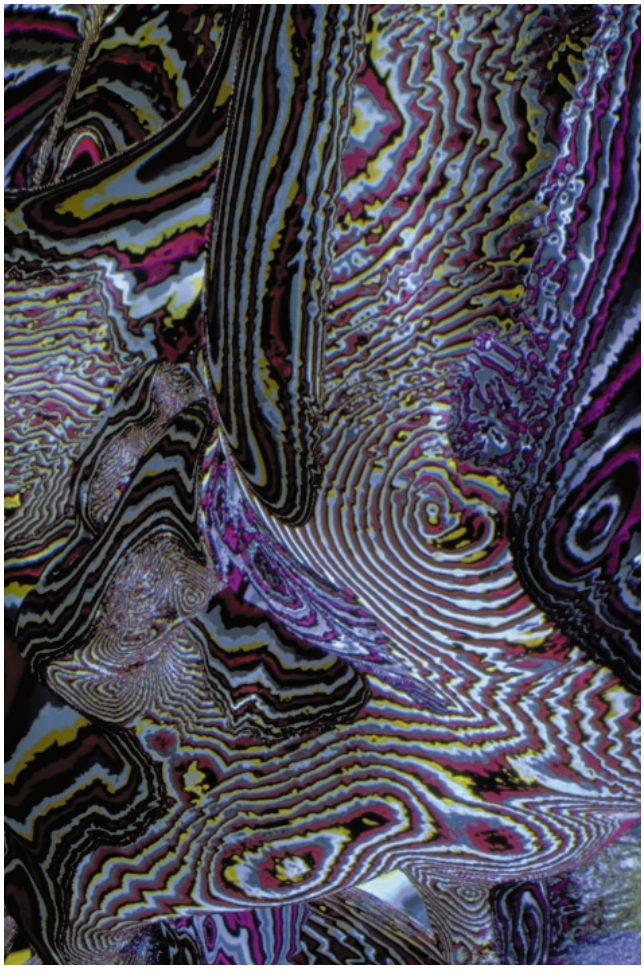
Three pieces of 3D lenticular images with HDTV animations were generated by the artist's artificial life algorithm for "growth art."



Cellular GROWTH: Brillia
1999
Lenticular with HDTV Animation
1m x 1.5m x 0.2m

Wriggon

Cellular GROWTH: Wriggon
1999
Lenticular with HDTV Animation
1m x 1.5m x 0.2m



Cellular GROWTH: Fossy
1999
Lenticular with HDTV Animation
1m x 1.5m x 0.2m

Fossy

Chaos Revenge
1999
Print 2D
35cm x 103cm x .1cm

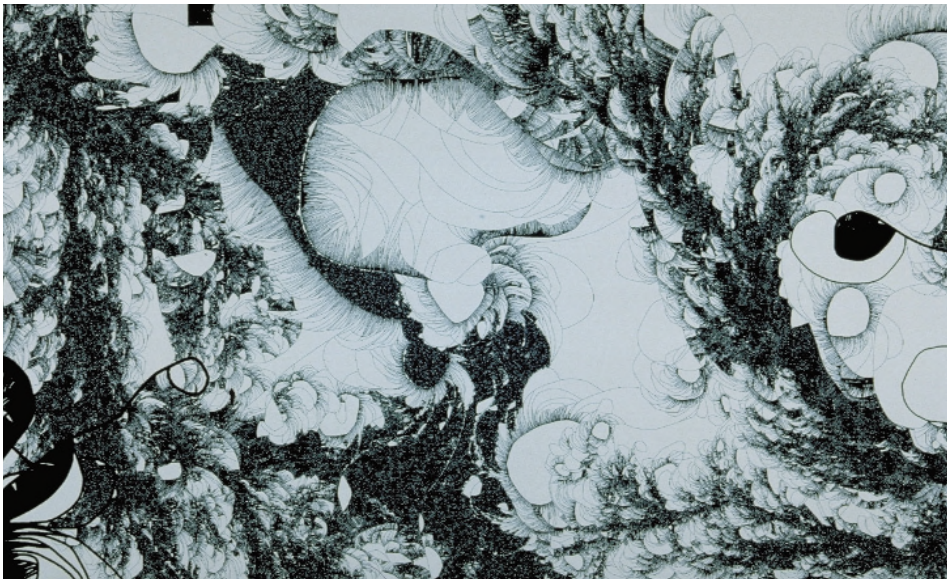
Mauro Annunziato

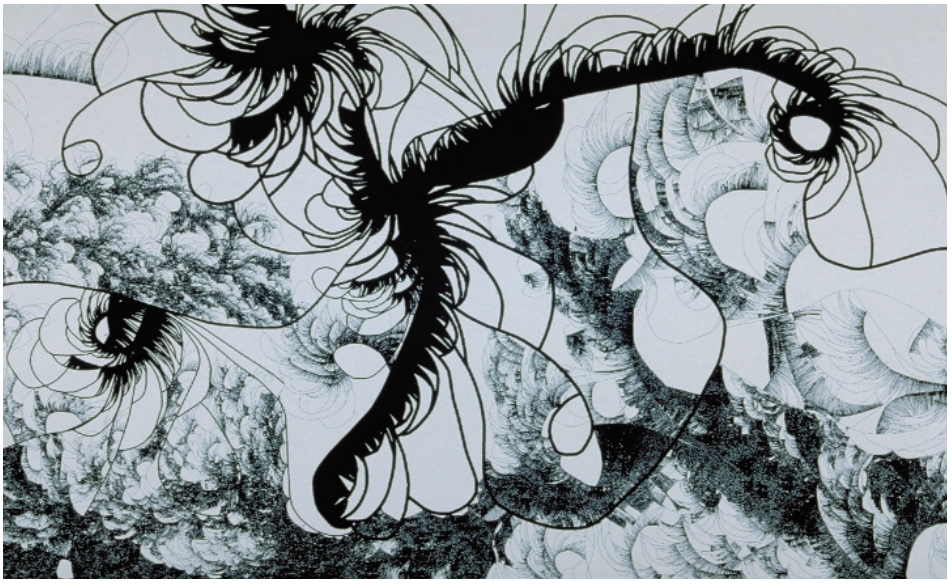
Chaos

Inspired by the emerging behavior of a population of individuals interacting, reproducing, and evolving in complex systems (self-organization), this work was created via an artificial life environment.

Local dynamics are chaotic, but their evolution produces well-structured graphic patterns that evoke aspects of natural life, social interactions, and mind dynamics. Exploring this approach, the consciousness is revisited as the self-organization of many interacting chaotic fragments (filaments in the image). The evolutionary process is guided and selected by the artist so that the emerging graphic pattern is identified as a fragment of the artist's consciousness. At that moment, local chaos takes its revenge, producing new shapes, new organizations, new consciousness, and, naturally, new chaos.

Details of *Chaos Revenge*

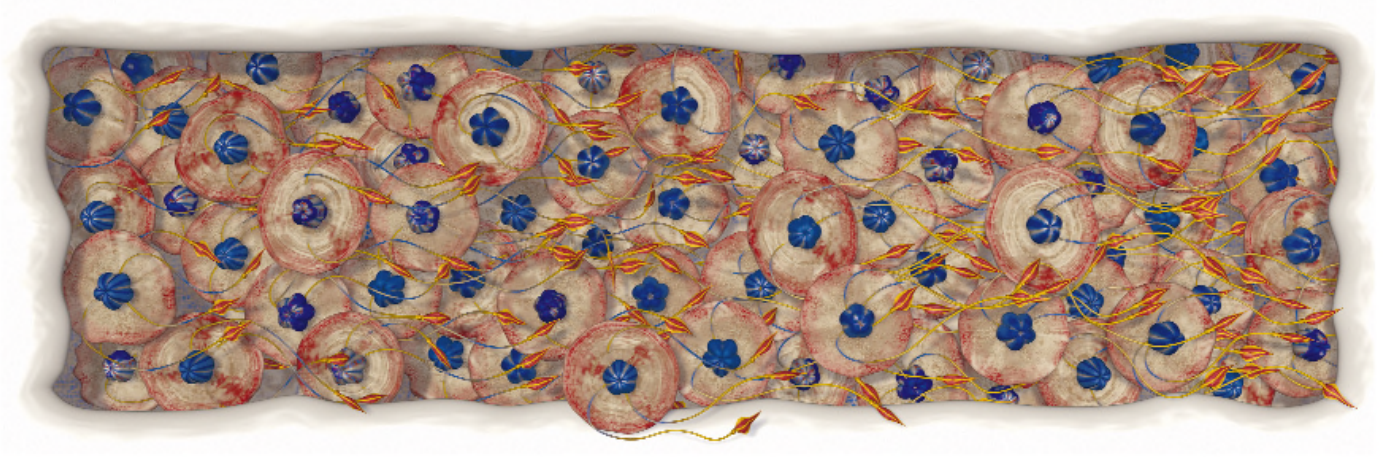




98.3

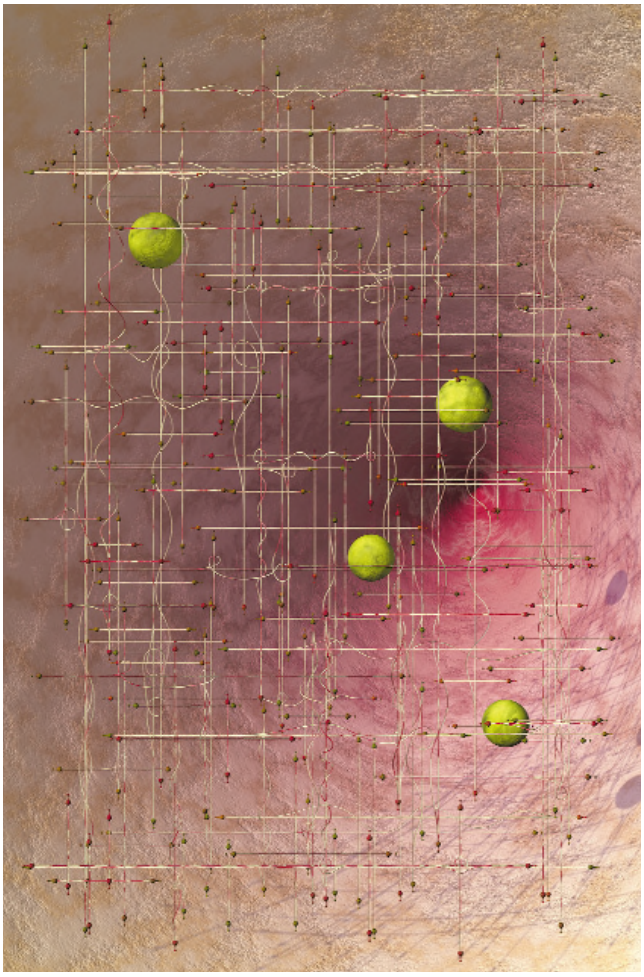
In nature, patterns are commonly formed by groupings of many similar objects. A combination of procedural and static textures and colors with the random selection of basic geometry ensures that each object in this image is unique. The high level of detail imparts a level of realism, while the generally consistent direction of the flowing objects conveys a strong sense of motion. The shapes contain characteristics of vines, leaves, mushrooms, and seed pods.

Kenneth A. Huff



98.3
1998
Laser-imaged Photographic Paper
11 x 33

98.4
1998
Laser-imaged photographic paper
33 x 22



Kenneth A. Huff

Recent advances in software have allowed the artist to create a level of geometric complexity that one would normally not have the patience to create. For example, each of the ornaments capping the ends of the horizontal and vertical lines in this image was applied algorithmically, whereas previously they would have had to have been placed individually, by hand.

The combined use of procedural and static textures and colors allows detail which is discernable at the finest level and which does not contain noticeable repetition. This level of detail adds to the realism of the image and the artist's work.

98.4

98.9
1998
Laser-imaged Photographic Paper
34 x 25.5

Kenneth A. Huff

98.9

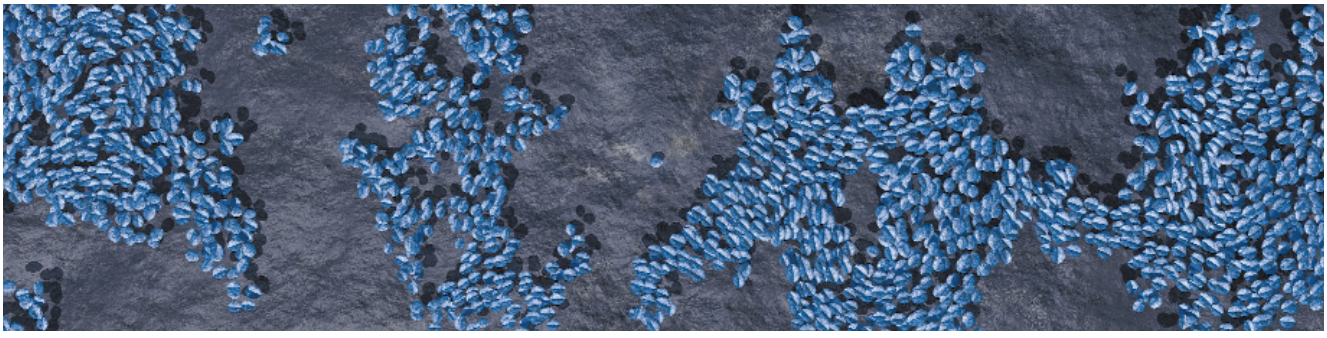
Strong contrast was created in this image with the stark lighting. The lighting and shadows are also one source of symmetry in this image. As in much of the natural world, the symmetry in this image is imperfect. For example, each of the floral shapes is unique, both in general geometry and in fine detail, yet the overall structure has a level of symmetry.

Kenneth A. Huff

98.13

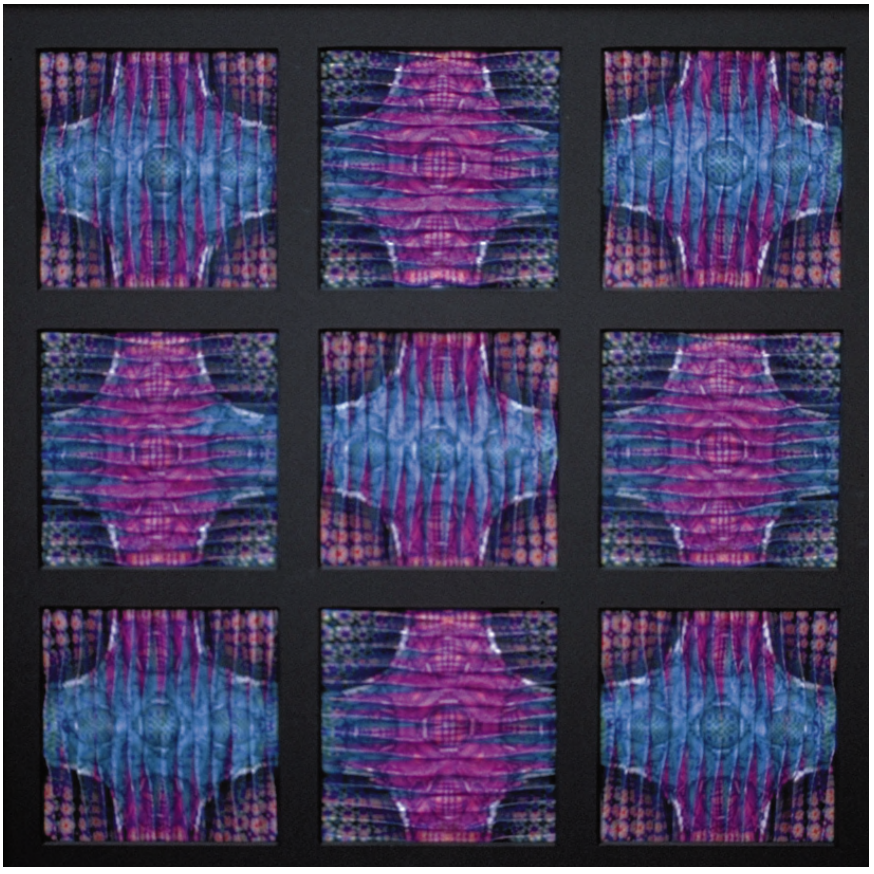
The subtle patterns found in the orientation of the over two thousand blue objects were produced algorithmically by placing the objects under the influence of a number of invisible "control" objects. Those objects falling outside of the influence of the control objects have a random orientation. The orientation of the objects is accentuated by the two-tone coloring.

While all of the objects are based on the same basic geometry, the slight randomization of size and the use of 3D procedural textures give each the appearance of being unique. This pattern of similar-yet-unique detail is found throughout the natural world, and is the inspiration for much of the artist's work.



98.13
1998
Laser-imaged Photographic Paper
9 x 36

SPT901
1999
Printed Fabric
50cm x 50cm x 1.5cm



Hiroko Uchiyama

Women's College of Fine Arts

SPT901

Various expressions in computer-generated imagery cannot be realized in hand-drawn paintings. In this work, the image is created in the non-tactile virtual space, transferred to fabric, and then further manipulated to produce 3D relief. The color scheme, in combination with the relief, creates different impressions dependent on the perspective.

Window

Jay Lee
Bill Keays

In this interactive art installation, first exhibited at the Massachusetts Institute of Technology in 1998, panes in a suspended window frame are substituted for a semi-translucent material suitable for rear projection. A video camera mounted above the suspended window is pointed toward a real window behind it. The panes in the real window are covered with mirrors.

The area between the two windows is the interaction zone. When a person walks between the two windows, the primary projected image breaks up into squares that rebound back and forth with elastic properties. Breaking up the primary image reveals a second one, consisting of the spectator's own live video image.

The installation interlaces multiple layers of real and virtual surfaces, effectively suspending the normal function of the real window. As they wander through the interaction zone, viewers find themselves hovering between the laminations of this fictitious space. Their movement creates an organic disturbance in the layers, focusing attention on the nature and function of spatial boundaries in physical and virtual worlds.

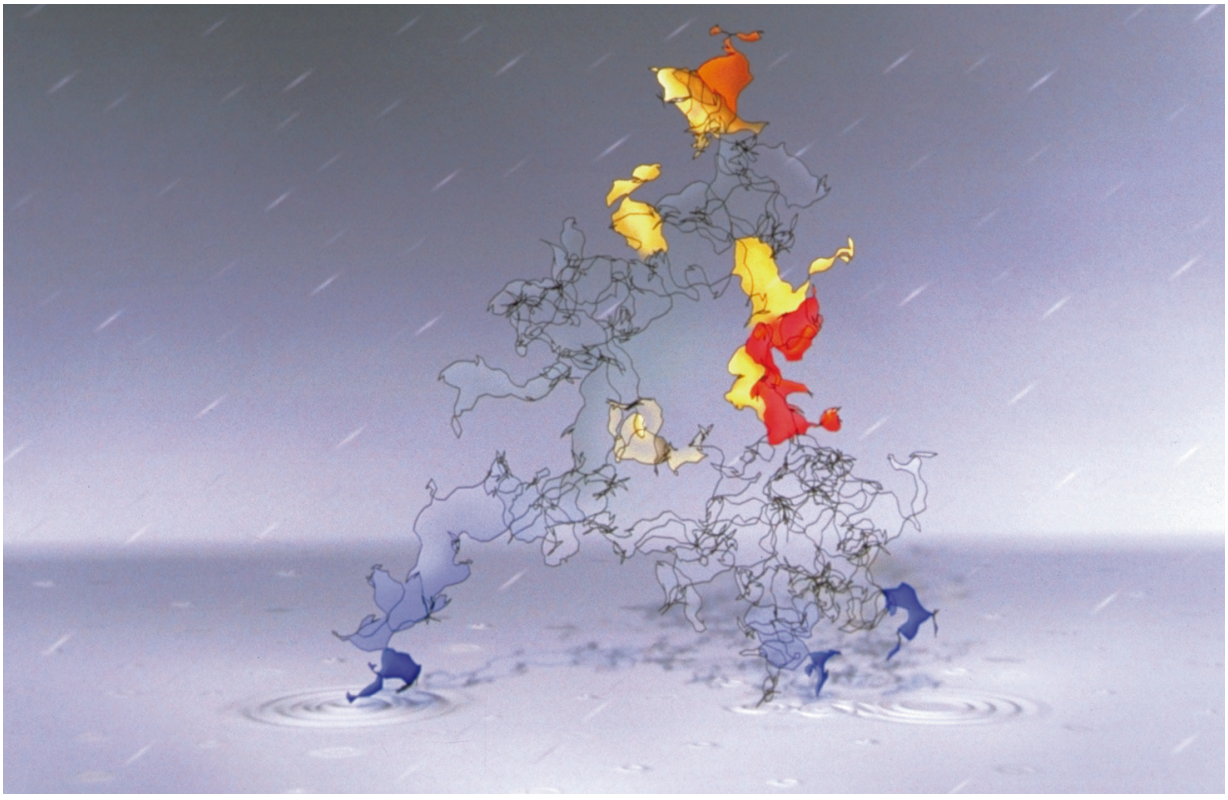
Suspended Window
1998
Video Projection
Computer Vision
10 x 15 x 30

Daniel Despain

Dance

The mathematically defined Hilbert Lindenmayer System is replete with imaginative and unexpected imagery. When they are viewed like Rorschach drawings, they reveal numerous visual scenarios. Added colors and textures begin to uncover forms within each system and invite viewers to discover their own personal interpretations.

The Twilight Dance
1999
Framed Photograph
16 inches x 20 inches



Puddle Jumpers
1995-1999
Framed Photograph
16 inches x 20 inches

Jumpers

Fruit

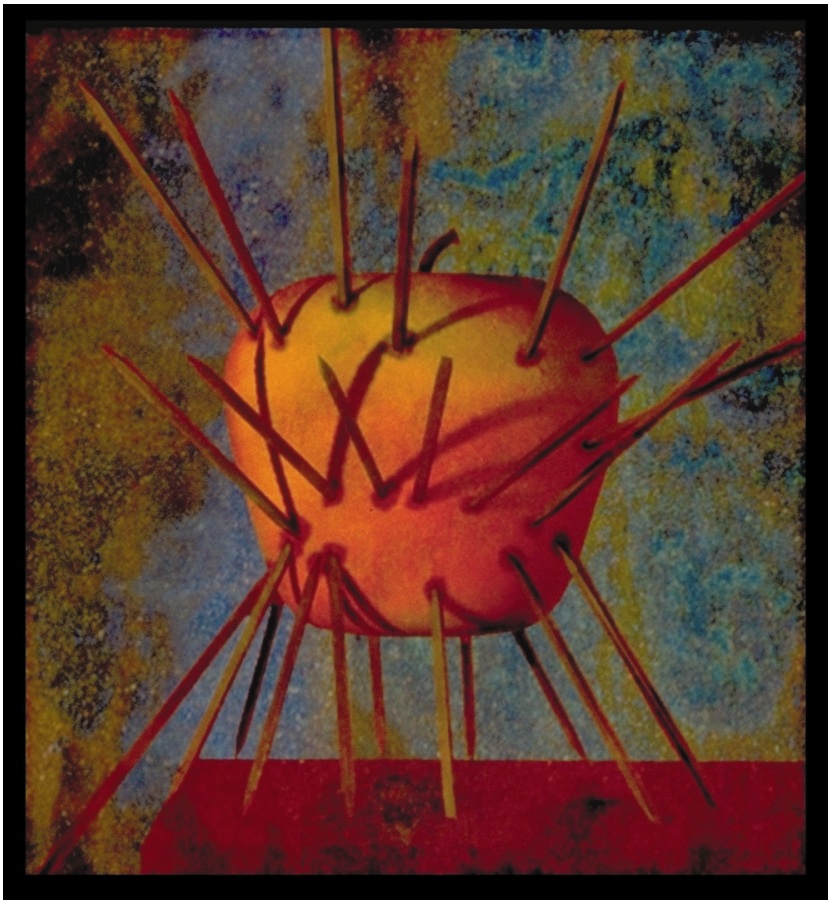
Patricia Swain

The Civilization of Fruit is a computer graphic journey through an imaginary history. It is part allegory because the history of "fruit" has ascended up the evolutionary ladder in a way that reminds us of human experience.

Civilization of Fruit:
Evolved Pear
1998
Iris Prints
8 x 7.6

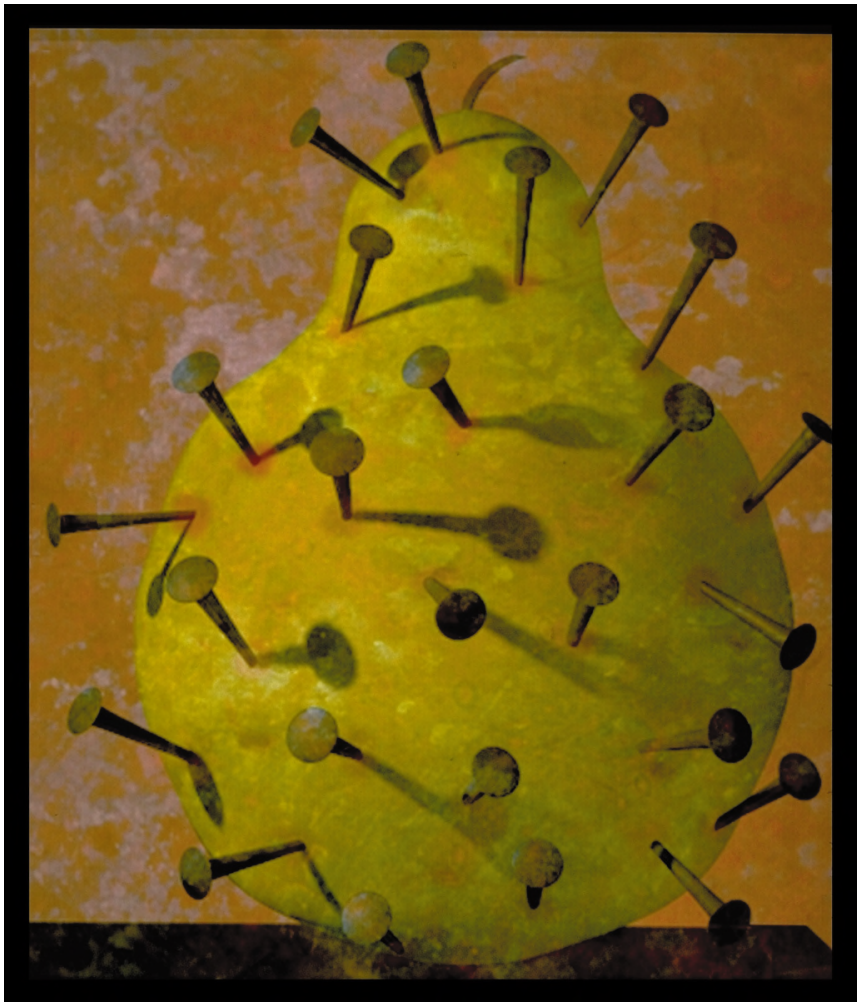
Civilization of Fruit:
Evolved Banana
1998
Iris Prints
8 x 7.6

Patricia Swain



Civilization of Fruit:
Martyred Apple
1998
Iris Prints
8 x 7.6

Fruit



Civilization of Fruit:
Sacrificial Pear
1998
Iris Prints
8 x 7.6

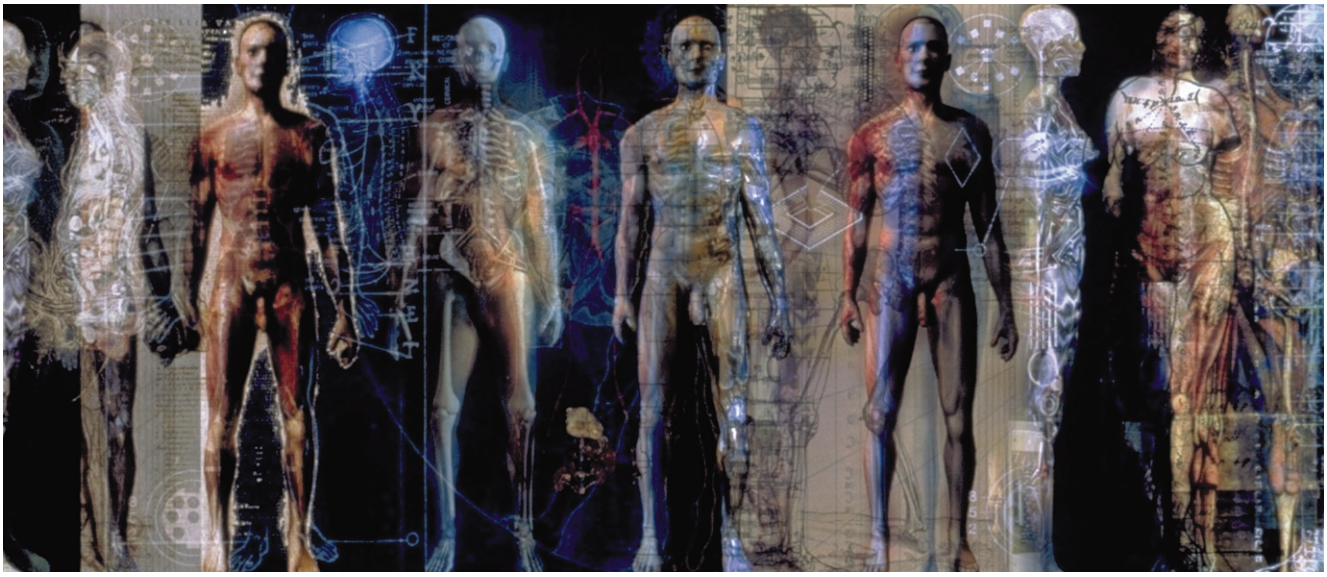
Trnava Synagogue
1998
Banner Print
54 inches x 33 inches

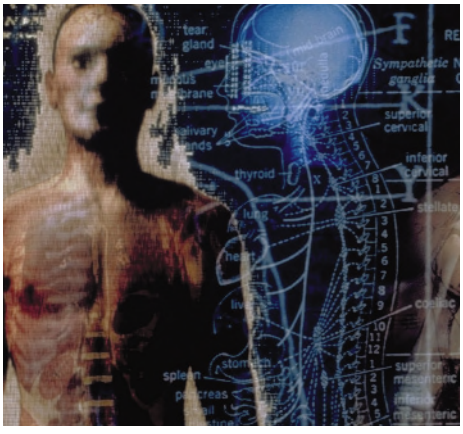
An imagined visual memory of a historical reality. With digital technology, photographic compositing is carried beyond simple juxtaposition to creation of delicate relationships floating in the vague space of time, where proximity comes from the vivid associations generated as the past is reconstructed in memory.

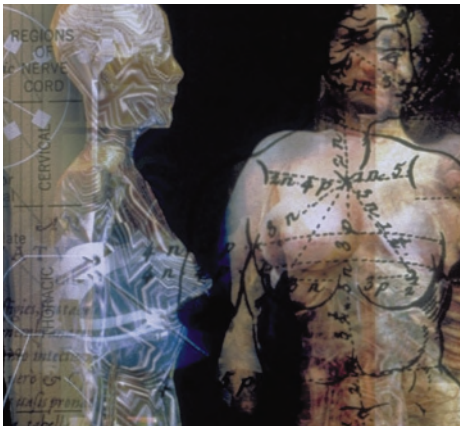
Trnava

Cynthia Beth Rubin

RE-constructing EVE
1999
Ink Jet Print
51 inches x 124 inches







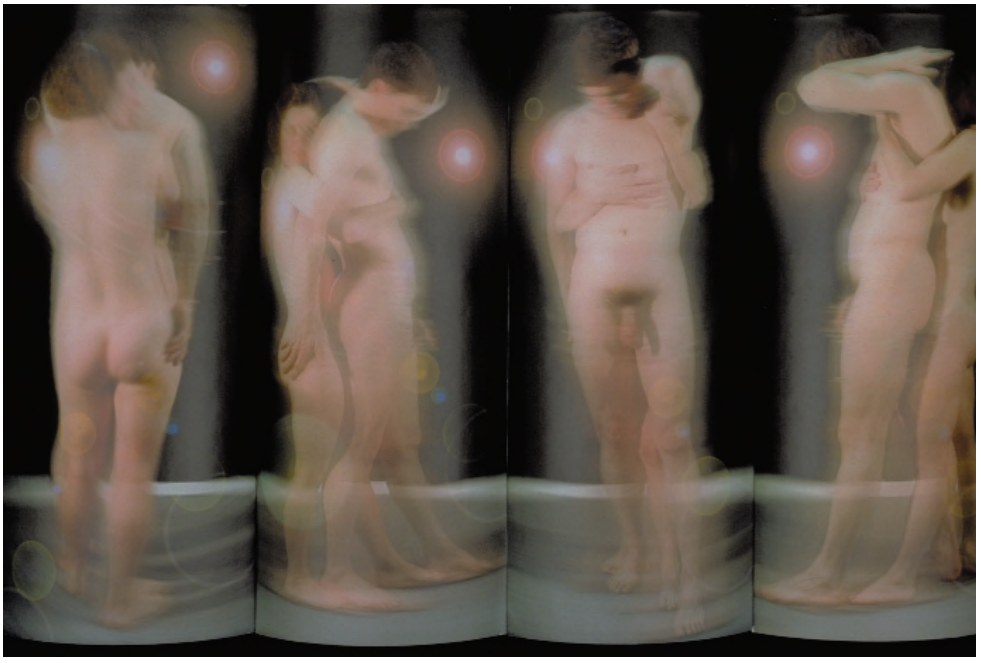
EVE

Xavier Roca

In 1886, Villier de L'Isle Adam, a French pre-symbolist, wrote L'Eve Future, a fictional fantasy about Thomas Edison building "a cybernetic organism, chimera and mythic hybrid of a machine and human being." RE-constructing EVE is a "blue print," an "assemblage" of symbolic materials, interactions, and historical anatomies of possible bodies.

Bodies, as in Villier's work, are conceived as partial identities, as works-in-part as well as whole. The morphology is an animated dynamo organized on an imagined network of metonymic figures, integrated muscles, prosthetic bones, and biotic circuits. The inside and outside substance is a juxtaposition of synthetic models and found recycled digital materials, created or downloaded, stored, manipulated, and rearranged in a mesh of difference / sex / woman / man / machine / history / order / poem.

A topographic evocation of genetic engineering, the work is ultimately transitional, an invitation to explore the "multiplicity" and the complex relationship between organism and machine.



The Dance
1993
Versatec Electrostatic Print
60 inches x 27 inches

Joyce Hertzson

Dance

These "electronic paintings" use video artifacts to embody personal and human-technology relationships. The "output" returns from the electronic environment of computer monitors and television screens to traditional art materials and processes, questioning the very substance of art. The visual contrast between the paintings that appear to be computer generated and those with electronic output where the technology is virtually transparent, expands the relationships among human beings, art, and technology.

The artist's current work, totally electronic in input, development, and output explores relationships with life, love, and art history. The images in the series were output to a Versatec electrostatic printer, permitting life-size scale and lamination of thin paper. The prints are flexible, so they can move around curved surfaces and adapt to a range of new environments.

Justine Cassell
Sola Grantham
Erin Panttaja
Kimiko Ryokai

CrossTalk

CrossTalk playfully mediates language and communication for two or more simultaneous users and their audience. Its two interlaced, over-sized keyboards, one made of mahogany keys, and one of maple, force users to negotiate shared space. As they type, the keys whisper words that appear to cascade onto a shared screen.

CrossTalk
1998
table, LED sign, screen, lights

Xrays

Annika Erixån

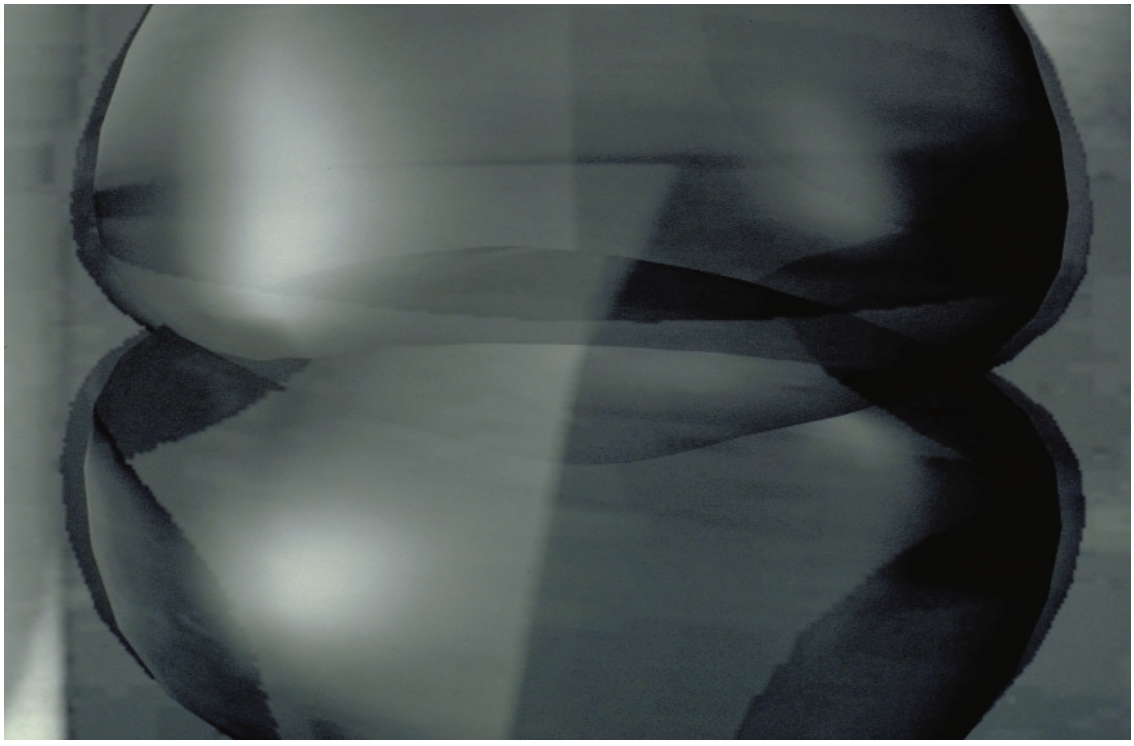
University of Gävle

Annika Erixan's work deals with radioactivity and its relationship to life's hopes and fears. In 1986, radioactivity from the Tjernobyl accident in Russia spread through her region of Sweden, where the population is still prohibited from eating mushrooms or berries from the nearby forest, or fish from the lakes. She continues to live there with her children and create art that makes use of their situation and their will to survive.

Xrays: Bladder
1999
3D/Xrays
70cm x 100cm

Bladder

Tarmie



Xrays: Tarmie
1999
3D/Xrays
70cm x 100cm

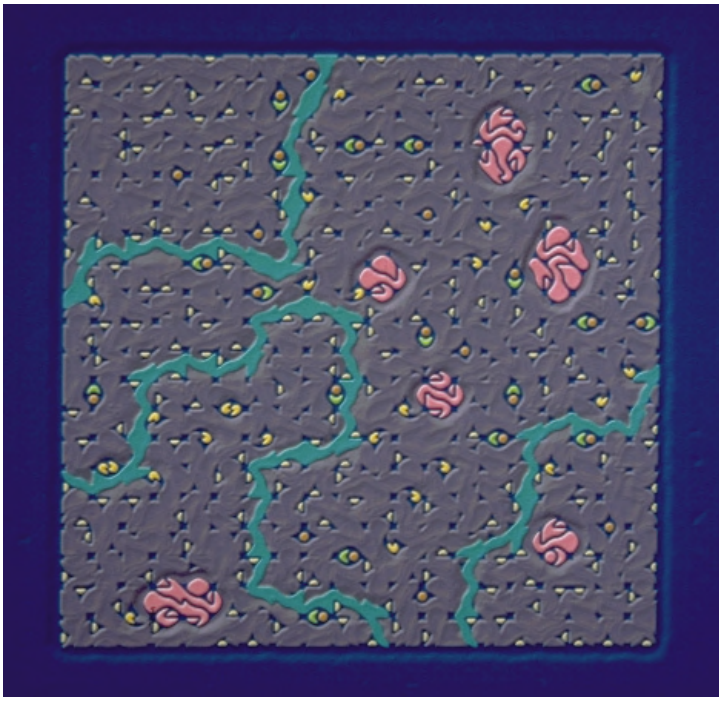
"Prairie" comes from a recent series of compositions developed from algorithmically generated tiling patterns. In their surface appearance, the compositions imitate traditional arts such as quilting, weaving, and ceramics. Through careful choice of compositional rules, the artist creates patter modules that recall natural patterns such as the dispersion of plant species across a meadow.

The artist began working with these tiling patterns over 20 years ago in Spain, where he developed the theoretical basis for the current series through an abstract, mathematical shorthand for representing the patterns and the rules that govern them. The patterns were used for paintings, theatrical games, and parametric spaces for musical compositions. Using a computer to manage the possibilities for image production and intermedia composition which would have been practically impossible to explore manually.

The series title, Recordatori (Catalonian for "memorial"), suggests that patterns act as memory cues, preserving and regenerating experience. Although in a sense the generative process itself is the artwork, the artist also attempts to evoke the role of traditional arts in carrying memory forward and the simple satisfaction we experience in the play of pattern and color.

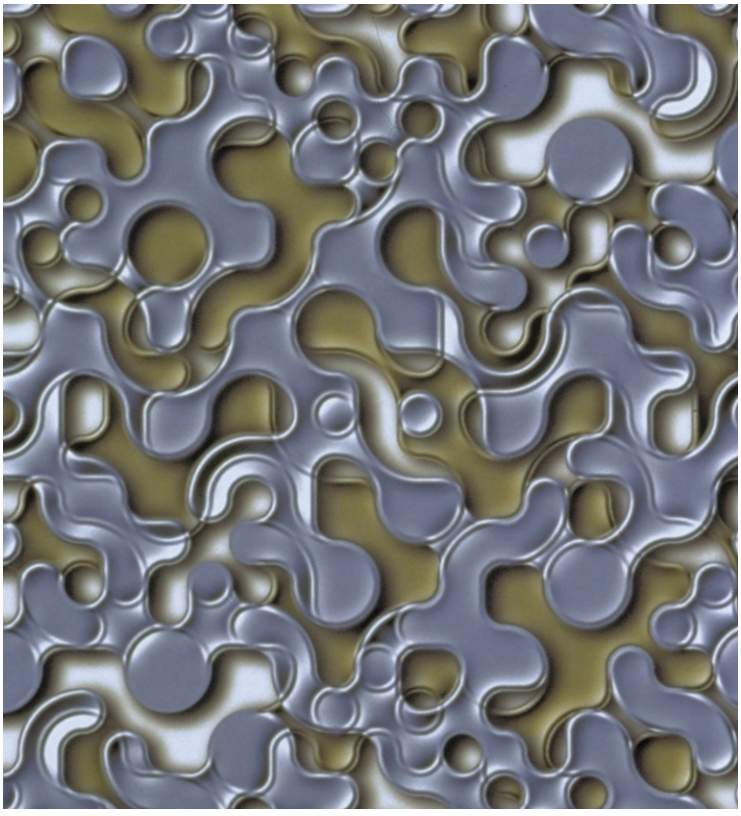
Prairie

Paul Hertz



The Recordatori Series: Prairie
1999
Iris Giclee prints
36 inches x 36 inches x .05 inches

My Gasket
1998
Iris Print on Arches Paper
69cm x 62cm



Paul Brown

My Gasket is one of the latest in a series of prints that combines an interest in cellular automata and their relationship to tiling and symmetry systems with the exceptional quality of printing that can be obtained with high-resolution ink jet printers. Each tile is permutated according to some simple system of rules to create a vector (line) graphic image that is imported into a raster graphics package for further image processing.

Rather than being constructed or designed, these works "evolve." They envision a time when computational processes will create artworks without the need for human intervention.

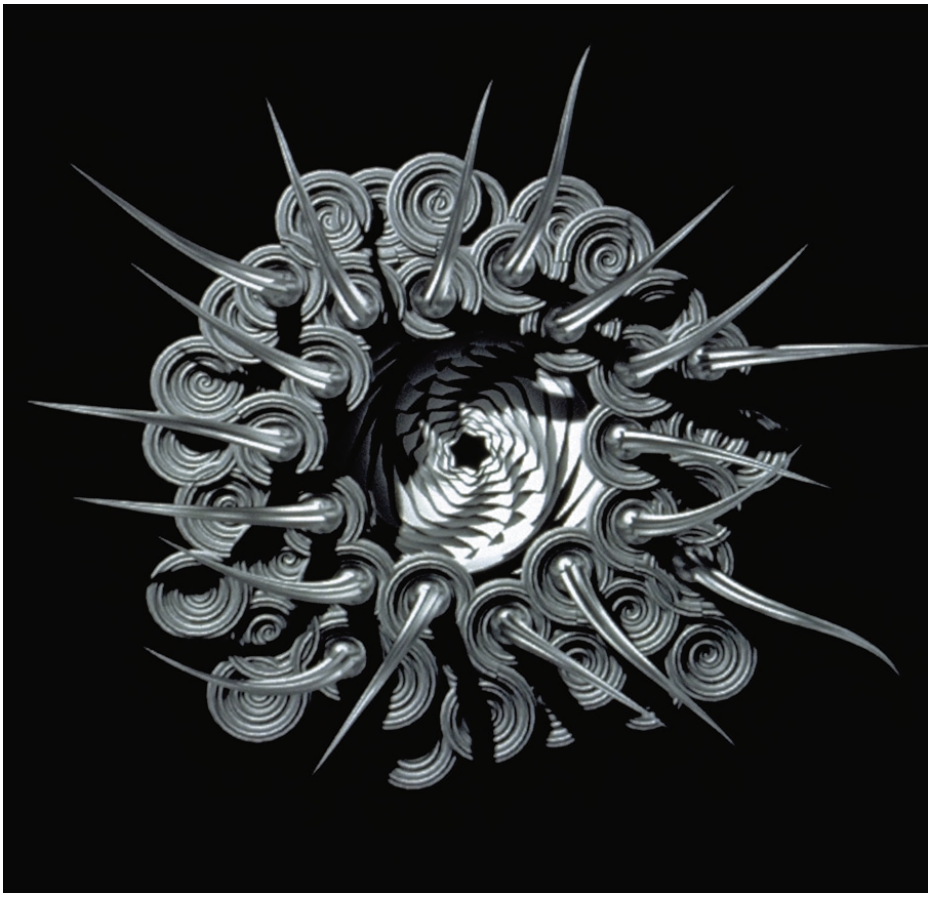
Gasket

Gary Day

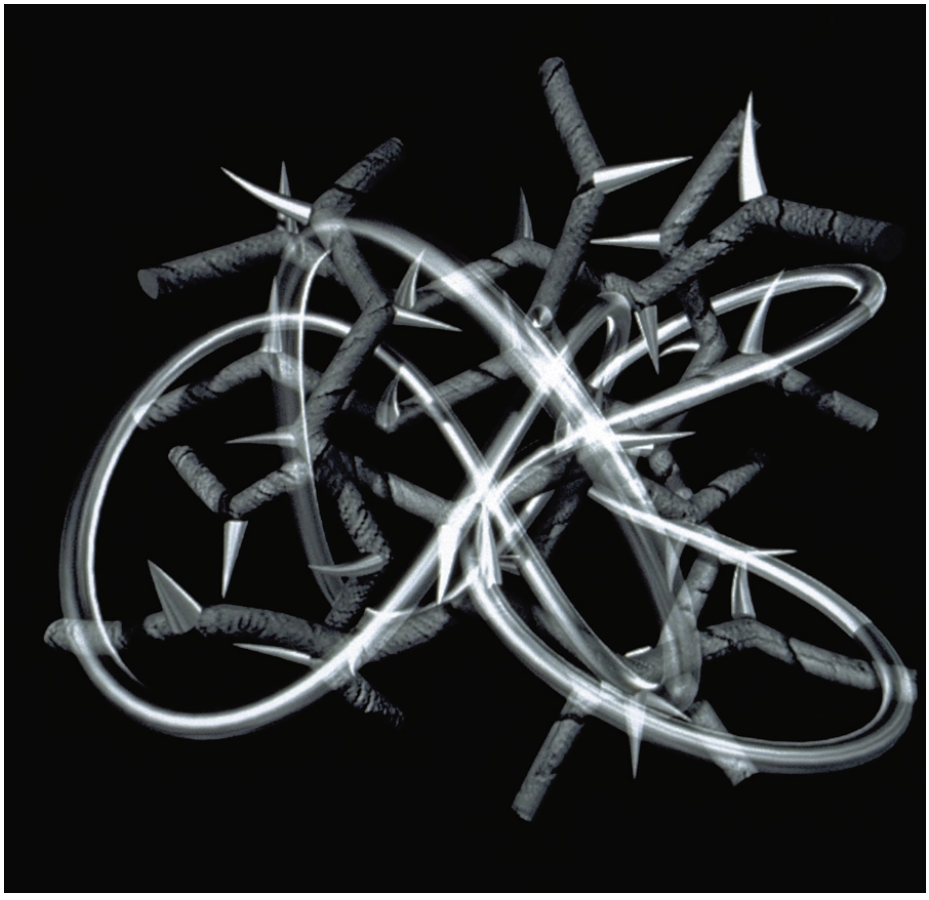
University of Nebraska at Omaha

Spines

This series of works, *Obres de la Caixa,* is an investigation of virtual objects that could exist in a "cabinet" of curiosities. The sources for the objects are multiple: scientific, decorative, fantasy, etc. They are simply things that one might collect because they initiate enough visual interest to pick up and save in a virtual box.



Spines
1999
FujiPrint
8 inches x 10 inches



Twigs
1999
FujiPrint
8 inches x 10 inches

Twigs

These cows were observed in a pasture in Lacock, England near the former home and studio of Henry Fox Talbot, where he took his first photograph – where the art of photography was born. The artist saw them through a window in Talbot's home, climbed a fence to get closer, and photographed them.

The paintings are about compositing images that inspire collaged portraits about cows in a landscape. The goal was to work with a single image of a cow and in some way change the cow enough so that it was somewhat unreal or surreal.

Many of the techniques used to create these images are directly related to the artist's work at Industrial Light & Magic, where she is a 2D painter and rotoscope artist. The techniques include: making articulate mattes, various types of masks, extractions, cleanplates, marks that assimilate marks on canvas, and ways to blend colors and edges similar to painting in oils or drawing with pastels. It is this "marriage" of technique and process that makes these digital cow paintings unique.

Susan Goldsmith

Betty's Barn Cow
1999
Framed C-Print
11 inches x 14 inches

Talbot's Cow
1999
Framed C-Print
11 inches x 14 inches

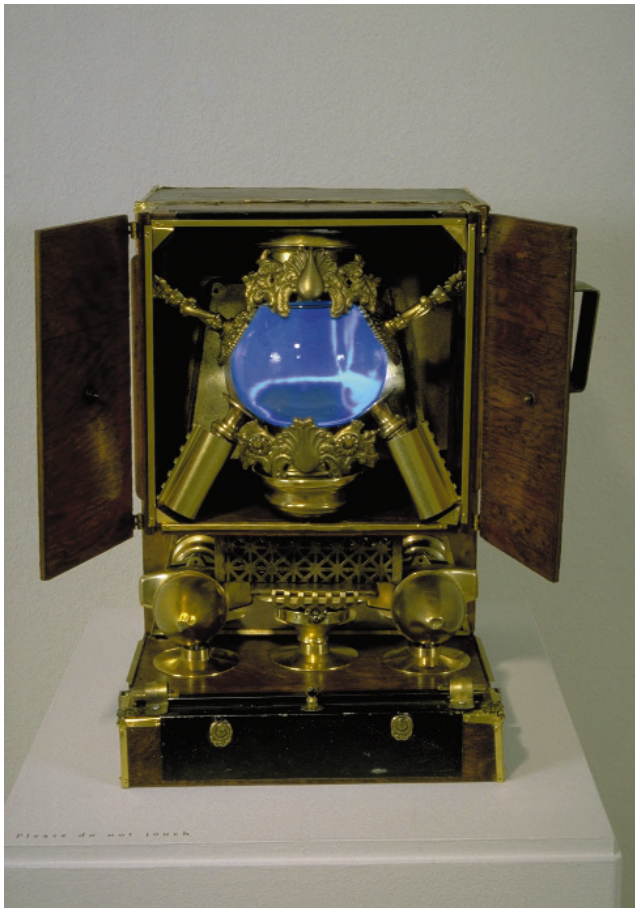
Cow for Drew
1999
Framed C-Print
11 inches x 14 inches

Televisors

Steve Gompf

Lisa Sette Gallery

Miniature Televisor, American, 1911
1997
Mixed media
12 inches x 5 inches x 7 inches



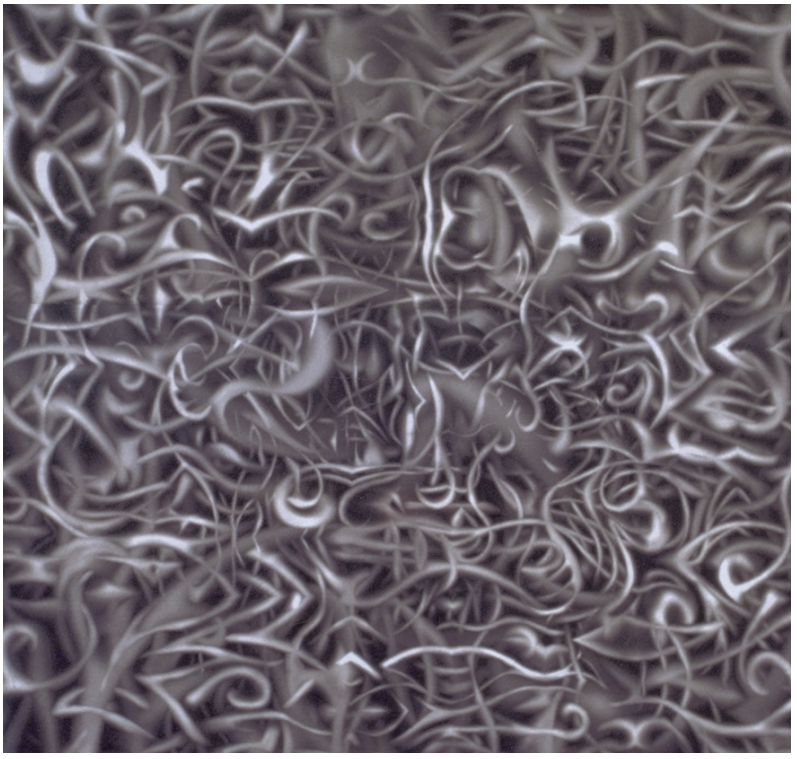
Televisor 1892, Italian
1996
Mixed media
18 inches x 12.5 inches x 16.5 inches

Argus Portable Televisor, 1898 British
1996
Mixed media
10 inches x 13 inches x 7 inches

Sheriann Ki Sun Burnham

Tortuosity

Tortuosity: A bend or twist; winding.
These works are from a series that explores the emergence of form from space and the structures created by these emergent forms. They represent variations on a theme: the structural nuances of order and chaos, and the ultimate balance between them.



Tortuosity: #9
1998
Digital Painting: Epson inkjet prints and acrylic on Reves printmaking paper, over wood
10.75 inches x 11.375 inches x 1.75 inches

Tortuosity #13
1998
Digital Painting, Epson inkjet prints and acrylic on Arches watercolor paper, over hardboard and wood
18 inches x 24 inches x 1.625 inches

Twist

Colour and Drawing:
From a Garden Table
1998
Composite Inkjet Print
32 inches x 22 inches x 1 inch

James Faure Walker

Colour

While experimenting with the transparent floaters on Painter 5, the artist discovered that sometimes a few variations in brush behavior are enough to lift the space and give it the right luminosity. Digital painting provides a depth and clarity that is impossible to achieve with oil paint.

This work also includes some real-life grit, from backyard photographs of pots and toy guns.

Our technology-driven civilization causes many social problems and distortions. Human society has accumulated huge contradictions between nature and technology that must be cured quickly in the next century. This image integrates surrealism and abstract imagery to express internal emotions associated with these dissonant realities.

Masa Inakage

The Media Studio, Inc.

Tangled
1999
Iris Print
60cm x 80cm x 1cm

Tangled

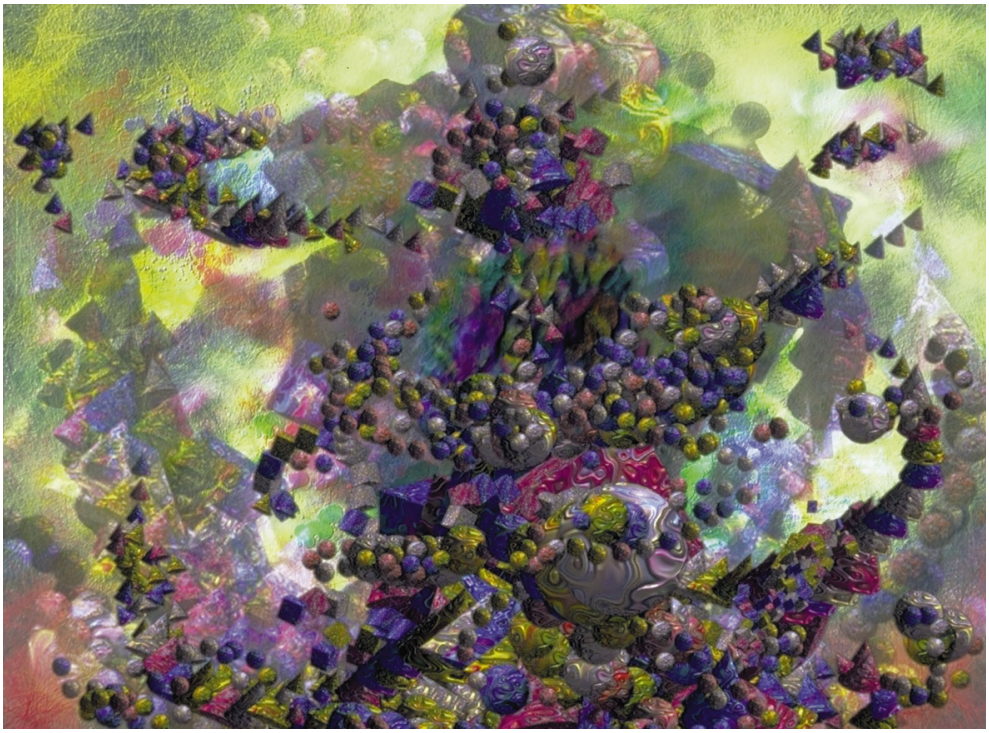
Jun Kurumisawa

Construction

Non-Material Construction combines artistic technique and colors that are not obtainable from traditional materials and gives birth to new forms and space that consists of individual forms. When computers create virtual worlds with unpredictable images and rearranged complex structures, and then affix these non-materials to paper, they take on new meaning and value as real-world materials.

Non-Material Construction #1
1998
Pictorico Original Digital Print on WARGMAN Clean Cut
800mm x 1025mm

Lost Connection
1997
Pictorico Original Digital Print on WARGMAN Clean Cut
750mm x 950mm



Jun Kurumisawa

In virtual space, shape primitives are produced and combined to create complex forms that can be broken up and returned to shape primitives. A virtual brush randomly generates shape primitives in virtual space. Brush pressure and paths are controlled by the artist.

This work was created for *Direct Manipulation Scene Creation in 3D: Estimating Hand Postures from Multiple-Camera Images* (SIGGRAPH 97 Electric Garden) by ATR Media Integration & Communications Research Labs.

Connection

Discretion Advised
1999
VAX Mainframe, FORTRAN 77, Interactive Graphic Library, COM recorder, photosilkscreen, photolithograph, scanner and PPC
30 inches x 22 inches

Let's learn to be silent from schools of fish. Let our actions be sound without noise.

Anna Ursyn

Discretion

Pleasure

The Assumption of Pleasure
1998
Ilfochrome print
35 inches x 65 inches x .05 inches

Anna Ullrich

This final piece in a loose trilogy that surrounds the Destruction, the Manufacture, and the Assumption of Pleasure expresses a desire for mastery and control over the male subject. The female subject assumes control of the production of female and male pleasure while smothering a male revolt.

DNA

An evolving abstraction of the landscape within a cell as it prepares itself for division. Swarms of DNA strands uncoil as they are copied during chromosomes replication. The multiplicity of scales, the vast number of strands surging from the deep inner space of the cell into the forefront, the myriad spirals all suggest the complexity and the vastness of the underlying coded information. The fuzzy symmetries evoke the replications as life evolves. The self-similarities convey that what we see has happened before and knows how to happen again. Each panel illustrates one phase in the process.

The work is not a scientific illustration, and it does not attempt to illustrate or explain genetic processes in the cell. It means to provoke a meditation about the awesome nature and structures of life and of our efforts to understand it.

Jean-Pierre Hébert

Study for DNA, Payne's Gray
1998
Acrylic inks on four sheets of cream Pescia paper
30 x 22

Study for DNA, Pale Hues
1998
Acrylic inks on four sheets of cream Pescia paper
30 x 22

Study for DNA, Red
1998
Acrylic inks on four sheets of cream Pescia paper
30 x 22

Life

Mountain

John S. Banks

Part of an ongoing exploration of creating "sacred sites," featuring portals of various types that use textures and colors to focus the space or hint at further locations.

Mountain Portal
1998
Lambda Photograph
30 inches x 22 inches

Waterfall Portal
1997
Lambda Photograph
21 inches x 30 inches

Waterfall

Gloria DeFilipps Brush

These images reveal the aura of language, the trajectories of words forming and attempting to move toward some syntactic position. Meaning is devised, relocated, decreated. Language slips, revealing and reviving, negotiating the soft terrain of ellipsis and substantiation.

Language

Language/Text Series - #3-7238
1998
Large Format Inkjet Prints
16 inches x 36 inches

Language/Text Series - #6-7278
1998
Large Format Inkjet Prints
16 inches x 36 inches

Language/Text Series - #9-7329
1998
Large Format Inkjet Prints
16 inches x 36 inches

Dark Monarch Lingering Shroud
1998
Large Format InkJet on Lexan with Vinyl Backing
60 inches x 45 inches

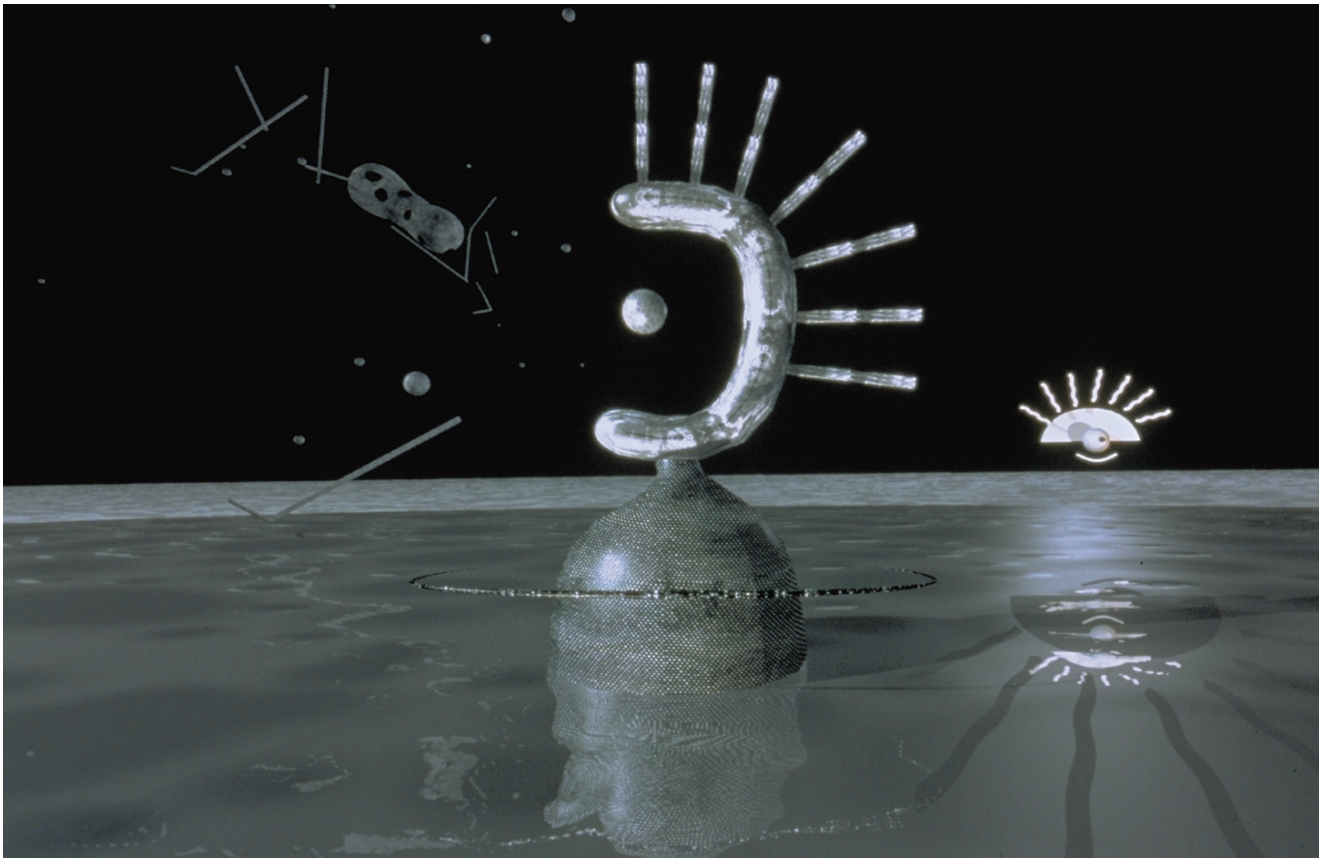
Andrew Polk

This image from a series of fantasy investigations of the human head, explores the possibility that creatures are composed of other living creatures. Treating death and decay as reiterative stages in the continuum of life, it comments on the human desire to attach a higher meaning to life.

Lingering

mister_ah

From the series *Earthdance#2 > Baja: Listening to the Desert,* a work in progress.



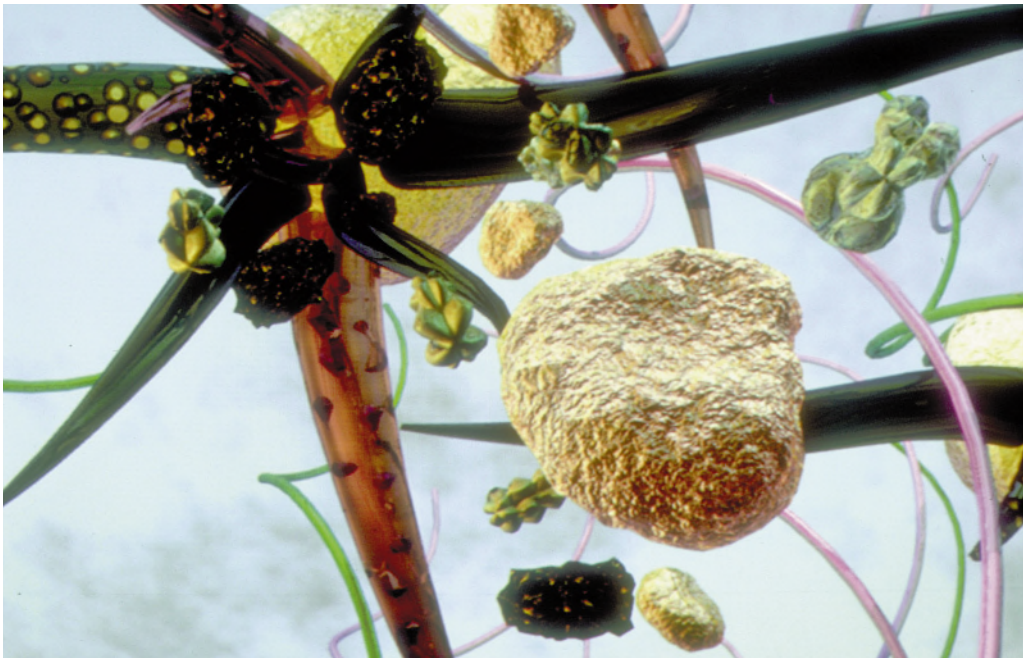
Baja: Listening to the Desert
1999
Print on Canvas
70 inches x 50 inches

Baja

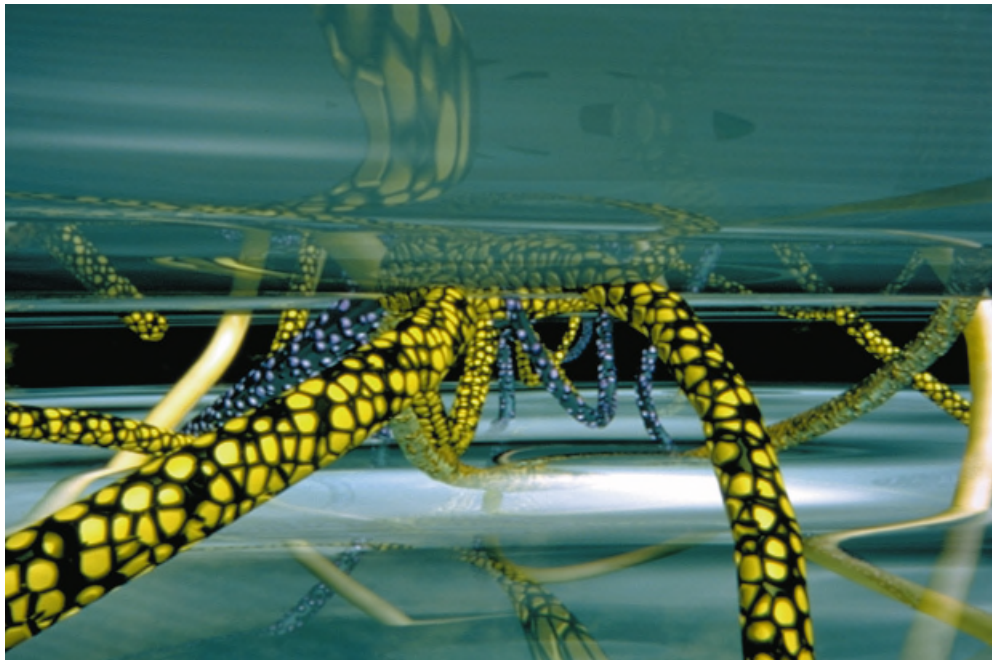
Floating

Mark Marcin

These works are about artifice, about making places that are imagined or invented. Ambiguity of scale can be unsettling. These landscapes are really innerscapes, where the viewer senses a world that is enticing yet uncomfortable. The images reflect turmoil, yet the turmoil attracts attention.



Floating 1
1998
Ink Jet Print
11 x 17



Inbetween1
1997
Ink Jet Print
11 x 17

Inbetween

Intersections #1
1999
InkJet Print
4.5 inches x 22.5 inches

Intersections

Intersections #1 is an image from a large body of work that weaves the time and space of captured moments, objects, and places into synthesized realities. Original photographs were scanned and digitally integrated to blend them into a new domain. The blended images were further manipulated by hand in paint software. The result evokes a tension between what appears as a simple reality and an unsettling illusion.

Thomas Porett

Ladder

Mary Ciani

This digital painting was created entirely in Photoshop with a Wacom tablet. It is part of the *Ladder Series*: experiments by an artist who has been in love with this new medium since 1994.

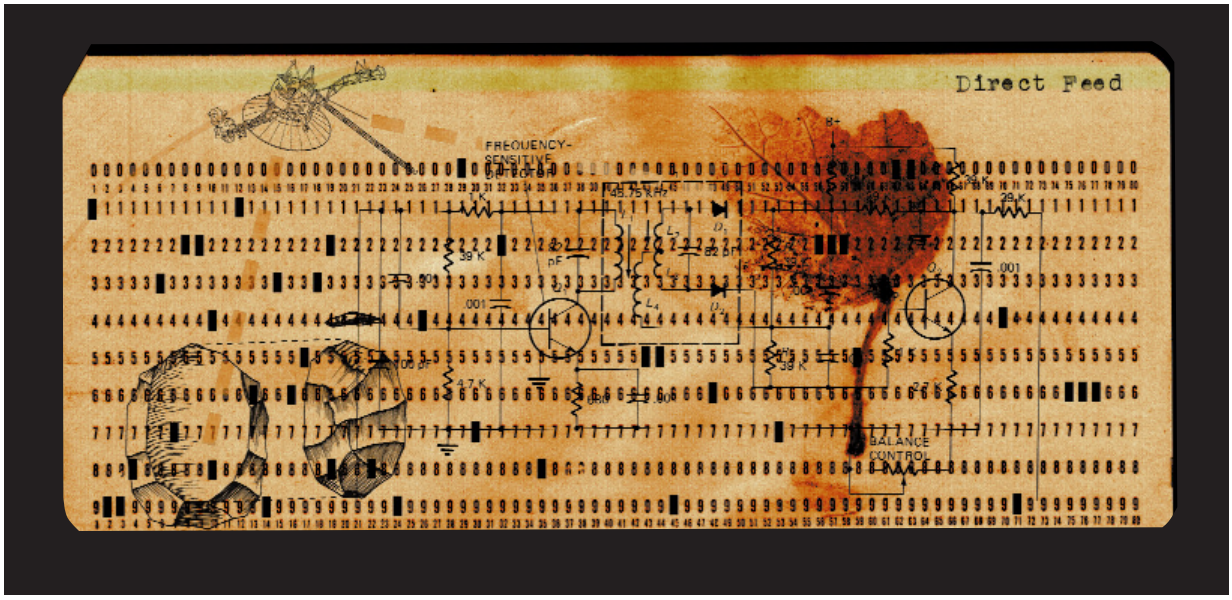
Ladder in the Trees
1998
Iris Print on Rag Paper
30 inches x 30 inches

Peter Patchen

Injection

Thwak! When a proto-human struck a stone against another to fashion a tool 2.5 million years ago, our physical, cultural, and technical evolutions were fused forever. Today's technology functions as it does because of who we are, and, ultimately, our culture becomes its operating system. The recontextualized current and prehistoric images and symbols in the series *Instinctive Technology* explore the relationship between our cultural and technological heritage. This work is a direct reference to the human experience of becoming a part of a visual history, much like the ancients returning to a single place to add imagery to that of their ancestors.

Injection Point
1998
Iris Print
15 inches x 32.5 inches



Direct Feed
1998
Iris Print
15 inches x 32.5 inches

Direct Feed

The Book of Hours
1999
Interactive CD-ROM

Aliyah Marr

MDA/newMedia Forge

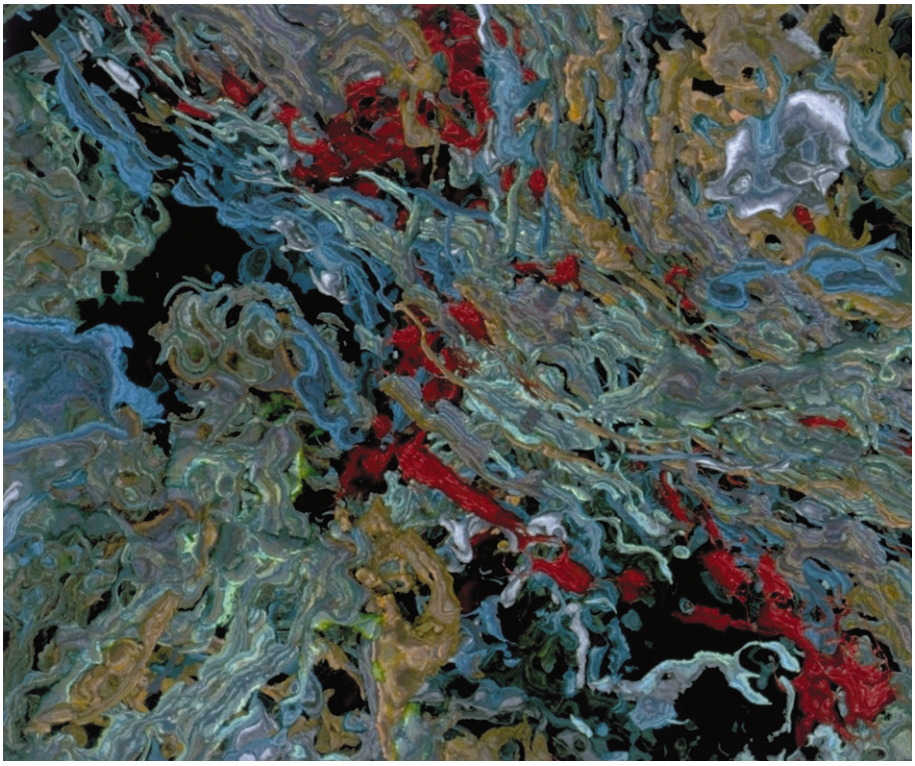
The Book of Hours is a non-narrative interactive multimedia piece named after the famous "Book of Hours" popular as a book of devotion in the Dark Ages.

An assemblage of original paintings, photographs, sounds and video clips, the nine "scenes" evoke a feeling of melancholy at the passage of time, loss, the bittersweet of memories, and the realization of personal mortality. The nine scenes develop at the viewer's pace, with hints of discovery and revelation, culminating in an interactive maze. The maze was an important symbol of the Middle Ages, representing life's journey, and was often painted on the floor of cathedrals. Completing the maze in this piece closes the circuit; the viewer ends up back at the "beginning".

The original Book of Hours was a source of prayers and meditations, to be executed by the devotee at certain hours and in certain seasons. My Book of Hours is meant to be likewise cyclical, feminine in form, non-linear and meditative.

Book

All In Your Mind
1999
StereoJet
16 inches x 22 inches x 1 inch



Mind

Kevin Mack

An abstract digital painting is modulated with volumetric noise functions and mapped to various parameters such as density, color, and texture. The painting is the seed for creation of complex 3D realities.

The artist creates abstract worlds of sufficient complexity and realism that viewers perceive representational content where none exists, like seeing faces and objects in clouds. The process of experimentation; discovery; and choosing views, color, and value relationships is based on personal aesthetic, which has no conceptual basis.

The image was created using Houdini 3D animation and Amazon paint software.

Window Series/Temple of Heaven
1998
Lambda Photograph
24 inches x 24 inches

Anne-Marie Rosser

This vignette from a series based on travels in China is meant to convey a feeling of contained beauty and texture by layering magnified, organic fragments over broader spaces and architecture. The created intimacy is meant to welcome the viewer into a foreign space that may have felt inaccessible.

Window

Anne-Marie Rosser

This piece uses architectural elements to create an intimate, personal experience of an expansive landscape. The effect creates a vision of a focused "moment" within the environment, containing the emotional response we have to boundless space.

Harmony Wall
1998
Lambda Photograph
24 inches x 24 inches

Wall

Ins and Outs

A combination of several viewpoints creates a space that is beyond the visual perception of the observer's eye. Still-life objects reveal themselves from the outside and from the inside, simultaneously.

The work establishes a correlation between natural, organic forms and the human form. An erotic and playful mood is established by extracting images from magazine advertisements that are indicative of our society's involvement with mass-produced, aesthetically designed statements about human sexuality.

Linda Majzner

Ins and Outs
1997
Mixed Media Collage
22 inches x 25 inches x 3 inches

Penny Feuerstein
The School of the Art Institute of Chicago

Looking

A subconscious eye looks at pendulum-like measurements. Texture brushes, made of scanned, found objects such as a rock and a piece of steel create the image, and the print's texture evolves from disparate images that combine until they are unrecognizable. The whole image repeats in the iris of the eye.

Digital tools allow the artist to transcend, integrate different levels of awareness, and reflect ideas of existence as a continuum.

Looking
1998
Iris Print
20 inches x 30 inches x 2 inches

Fava

Anna Chupa
Mississippi State University

Fava Milagro receives its title from tiny votive offerings called milagros and from fava beans. Fava beans are considered lucky because the fava plant was the only plant that thrived during a major famine in Sicily. Reprieve from this famine was attributed to St. Joseph's intercession.

Fava Milagro
1998
Lightjet Print (C-Print) on Semi Matte Paper
10 x 10

Documentation of religious shrines has influenced the artist's work in digital media for the past three years. Her most recent digital collages are inspired by devotional sites in Holy Land (Waterbury, Connecticut USA) and Ave Maria Grotto (Cullman, Alabama USA) as well as the more temporary altars created in celebration of St. Joseph's feast day in New Orleans. Other conceptual influences derive from Celtic illuminated manuscripts and African-Atlantic altars. The transformative powers of these devotional works are echoed in the personal stories told by those who create them.

The artist's digital collages combine idiosyncratic fragments of personal narratives with universal archetypes. By manipulating scale, contrast, and relative visibility of detail, she maintains a tension between accessibility and obscurity. Although the symmetries suggest order and control, the actual process of making the patterns is more like automatic writing or glossolalia.

Fava Milagro and Marys Helpers are part of a body of work created for a traveling exhibition, Saints Among Us, funded in part by the J.W. Criss Fund and Mississippi State University. Participating artists were Anna Chupa, Anne Hanger, and Kristen Woodward. For more information, see:

www.erc.msstate.edu/~achupa/saints/

Mary's Helpers receives its title from one of the locations of a St. Josephs altar in Gretna, Louisiana USA. Details from the altar form some of the patterns. The image of Mary is from a statue of Our Lady of Fatima, photographed at another altar location.

Mary's Helpers
1998
Lightjet Print (c-Print) on Semi Matte Paper
10 x 10

Helpers

OrDoll

In this new-style music box, users experience dynamic 3D scenes as well as music. Dancing dolls make sounds when they touch the floating triangle objects (“music pieces”). The music pieces and dolls correspond to the pins and teeth of the music box.

Makoto Satoh

The OrDoll
1998
Computer Display
3000mm x 3000mm x 3000mm

Mother
1998
Acrylic and Oil Paints on Canvas
5 feet 2 inches x 5 feet 2 inches x 1.5 inches

Midori Kitagawa

This painting represents the artist's view of her relationship with her mother, but viewers often offer alternative interpretations. The tree was created as a 3D object with the software called "BOGAS" written by the artist, printed on 8.5-inch x 11-inch paper, and painted on canvas with acrylic and oil paints.

Mother

Inside Light
1998
Iris Print
22 inches x 14.5 inches

Harvey Goldman

One of a series of experiments with digital illumination in a virtual environment. Pure light and its refractive and reflective manifestations are used as the artist's paint brush. Compositions are punctiliously constructed and articulated in the ongoing quest for pure and essential interactions and illumination.

Light

Reborn

The spiritual strength of women is thematic. Divine feminine feeling is elicited through subject, style, and essence. Enhanced by an authentic combination of line, movement, color, and texture, the visual story evokes tradition through technology, creating an impression of watercolors. Visions project a narrative of relationships that spring from the artist's life, luminously expressing the raw emotion of the subconscious mind. Ideas are born, transform, and are reborn as the digital art medium magically fuels the artist's inner spirit, riding a higher power. Pleasure is derived from the active process whereby the mystery is revealed only when the final image is completed.

Francine Bonair

Spirits Reborn
1994
Fine Art Iris Print on Watercolor Paper
10 inches x 8 inches

Manxmas
1999
Iris Print on Canvas

Creating artwork that is totally non-representative at inception, that remains so upon completion, but that allows the individual viewer to derive representative imagery from abstractions, can be very dynamic. This type of work inadvertently addresses the brain's ability to subconciously process repetitive patterns in both the obviously spatial and subtly self-similar domains. The artwork evokes different reactions in different viewers, who notice things that even the artist didn't notice, so the work evolves every time someone new views it...

Why is there this incessant need for such highbrow aesthetic and meaning in fine art? All that really matters is that it is pleasing to the eye...

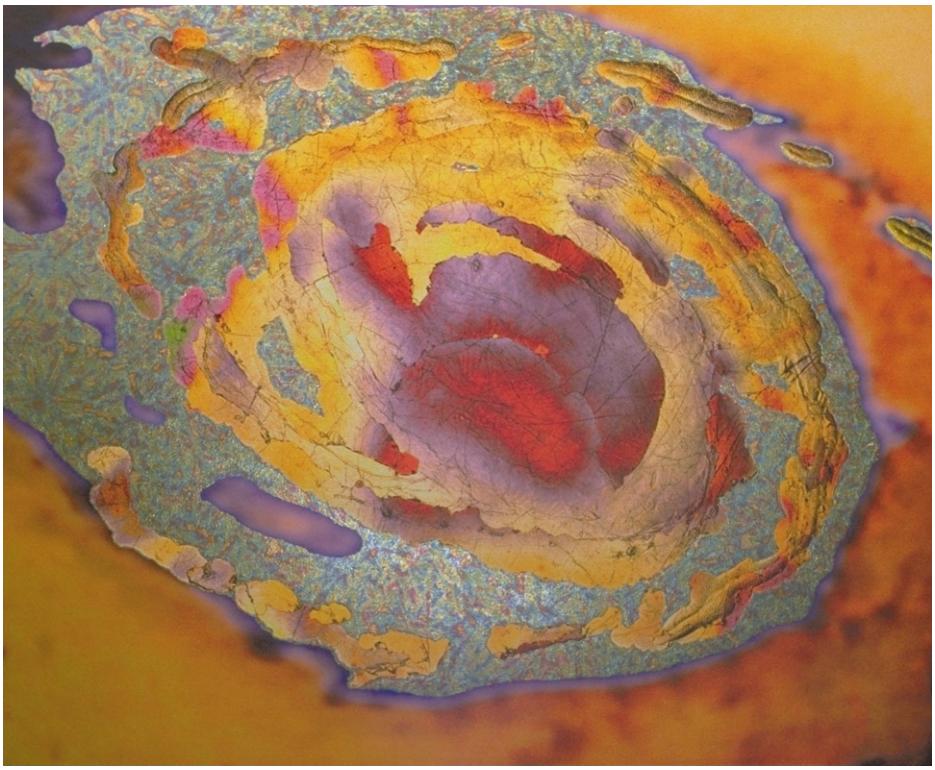
Patterns

Robert Frick

Victor Raphael

Comet

In the continuing Space Field series, the artist adds metal and gold leaf to Polaroid images then manipulates and transforms the images through digital scanning and printing with the Iris and Encad printers.



The Space Field Series: Comet Nebula
1997
Unique Iris on Canvas with Metal Leaf
29 inches x 35.5 inches

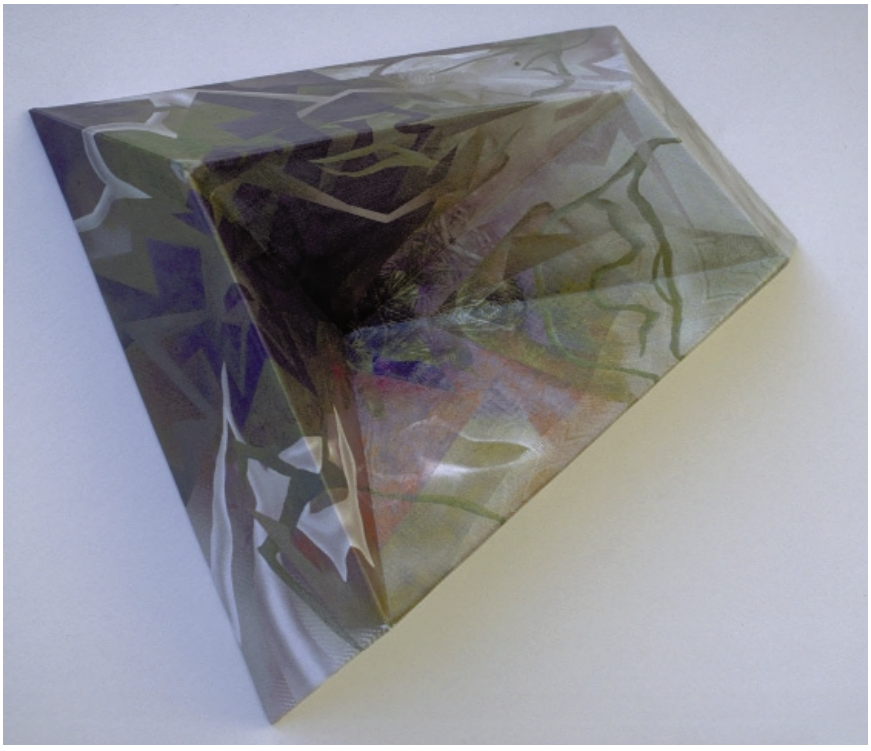
Bookshelf Communication
1998
Computer graphics
Display design
3000 x 3000 x 3000

Hiromi Michiyori

Hiroshima City University

In this "bookshelf" installation, video content displayed on the book spines changes as the books are pulled and pushed. The work explores the intersection between daily life and imaginary spaces.

Bookshelf



Valley
1997
Digital Wall Sculpture
16 inches x 17.25 inches x 4.125 inches

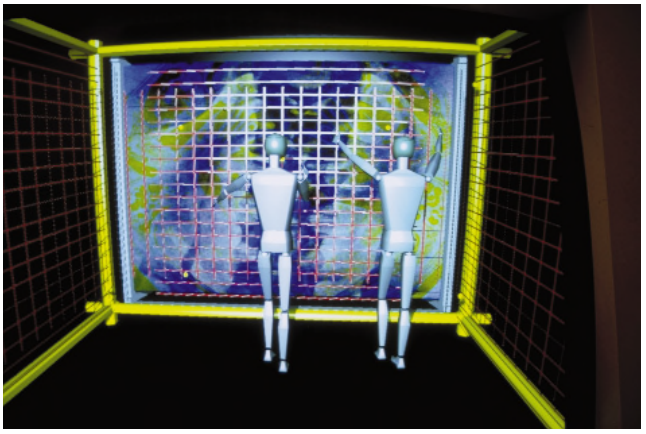
Sheriann Ki Sun Burnham

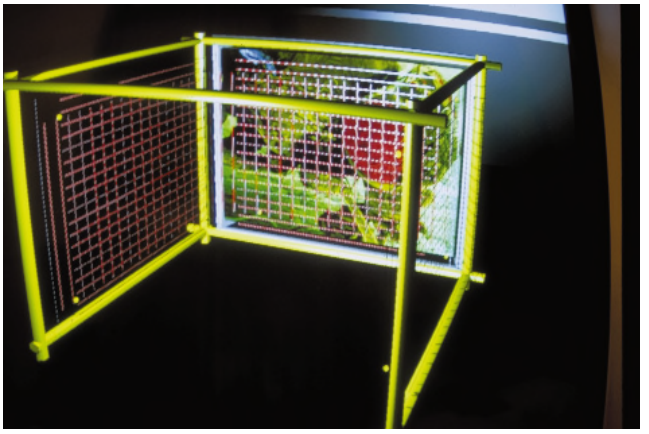
Valley is from a series of dimensional paintings that reach out into "real" space and present multiple perspective viewpoints; abstractions that express the essence of ideas, places, and things. Each piece presents a new vista to explore and invites the viewer to share in the exploration.

Valley

Maharaj Singh
Franz Fishnaller

F.A.B.R.I.CATORS





Tracking the Net, Interactive installation

Tracking the Net is an installation under the form of an interactive netted cube of 3X3 meters with rear-projection onto one wall, with high-resolution image. It can host from 1 to 10 interactive visitors, which can navigate and interact in real time.

The cube has its own electronic sensors and active notes, which reveal the presence of the visitor. Movements of the visitor can be detected and measured over a wide space in order to control a real-time animation. The visitor can interact with the virtual environment by touching, pushing, and manipulating the net. Just by interacting with the net the visitor can navigate and interact with the virtual objects, sounds, music. Movement of the nets are detected by infrared cameras (Qualisys) and identified by real-time tracker.

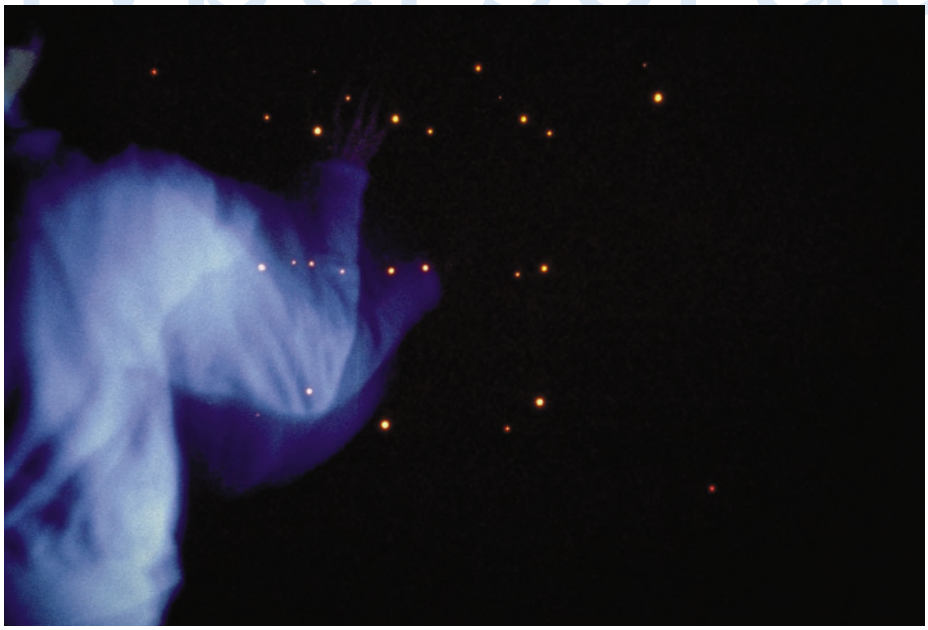
Interacting with the net the digital environment morphs into a high-speed vortex. The space morphs into a different environment. A highway of information, streams, discks, whir, layers of network cyber landscape appear, arriving, moving, crossing from all directions. Streaming towards different information nodes. From an electronic stream all expands into an intangible cyberspace, there are no boundaries... We are in the habitat of *Cybor Net*.

The next step of *Tracking the Net* is an installation of 4X4 meters with rear-projection onto 4 walls, with high-resolution images (stereo and non-), able to take form 1 to 20 interactive visitors, which can navigate and interact simultaneously in real time.

The Netter cube is compose in a large scale with the innovative cable: *Live Wire*! *Live Wire* is ELAM's innovative, cable like, electroluminescent (EL) lamp. It is a thin fibre, 0.7 mm (0.275") lighting diameter, emitting light when an alternating current is applied to the electrodes the fibre ends. *Live Wire* construction is a multi-layer coaxial cable with a dialectric layer made of electroluminescent phosphor particles.

Tracking

Hyperscratch



Hyperscratch 9.0, Interactive installation

Haruo Ishii

In this interactive installation, anyone can use hand motions to freely control light and sound in a 3D space.

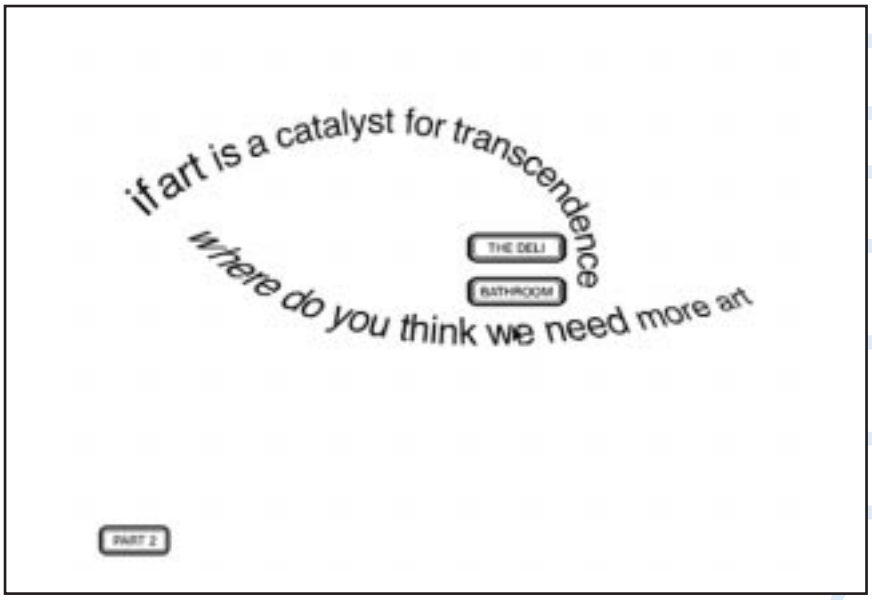
Kim Stringfellow

The Charmed Horizon

www.kimstringfellow.com/charm.html

Horizon

SUTURE

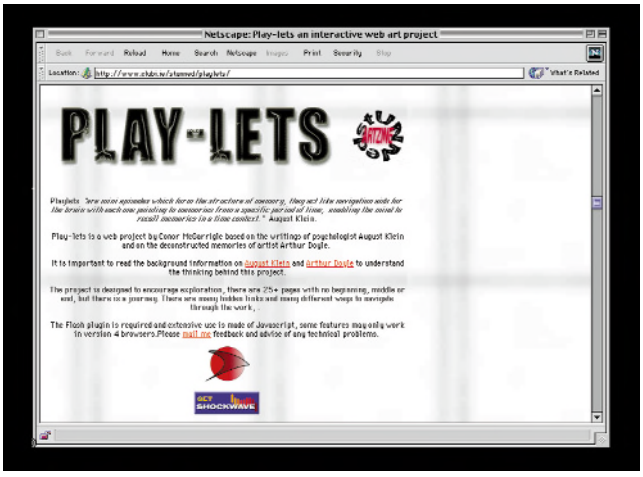


Adam Chapman

SUTURE

www.theadm.com/suture.html

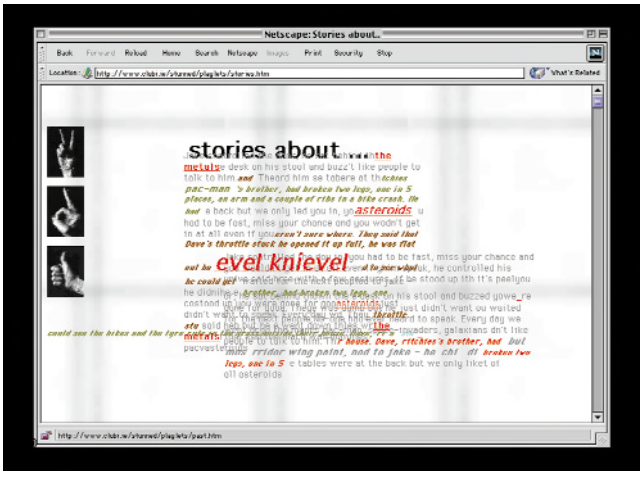
PLAY-Lets



Conor McGarrigle

PLAY-Lets

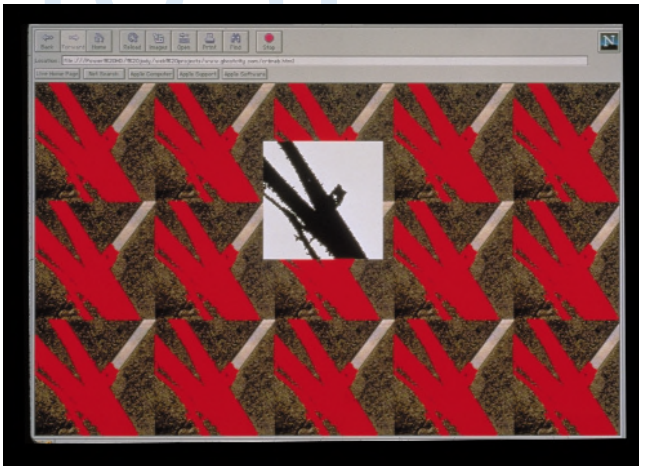
www.clubi.ie/stunned/playlets



Jody Zellen

Ghost City

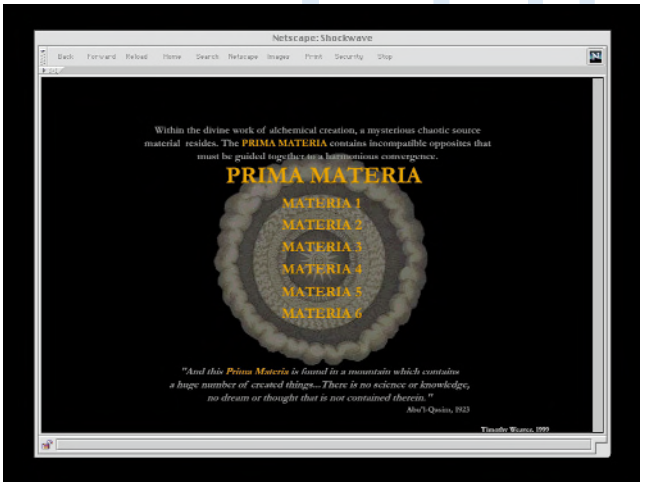
www.ghostcity.com



Timothy Weaver

Prima Materia

artswire.org/~tweaver/prima_materia/prima_intro.html

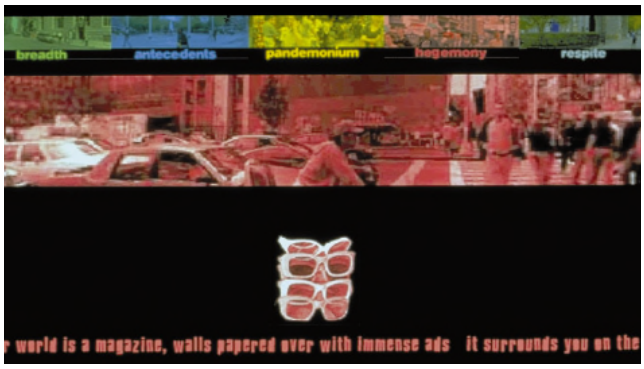


Broadway

Annette Weintraub

Sampling Broadway

www.turbulence.org/Works/broadway/index.html



Nagasaki

Marilyn Waligore

Nagasaki

www.utdallas.edu/~waligore/nagashok/naga.html

MeMart

Madge Gleeson

My MeMart

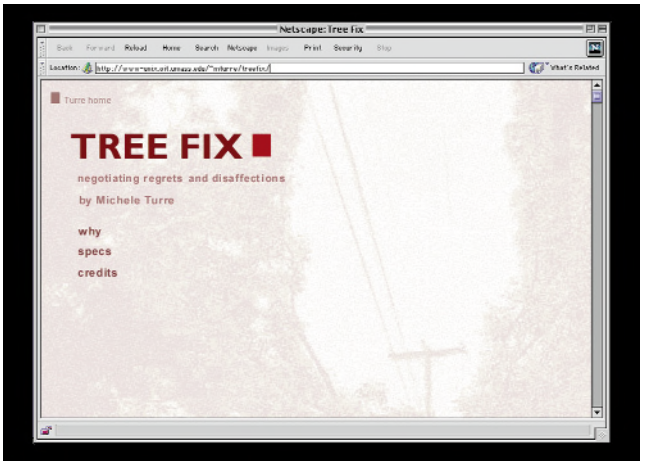
www.users.interport.net/~mgleeson

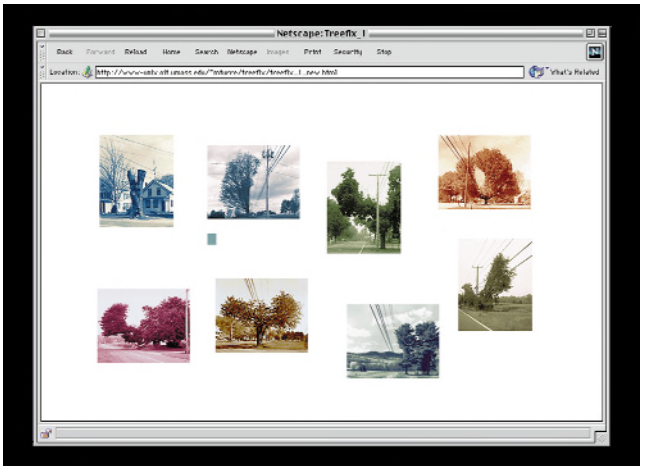
Tree

Michele Turre

Tree Fix

www-unix.oit.umass.edu/~mturre/treefix



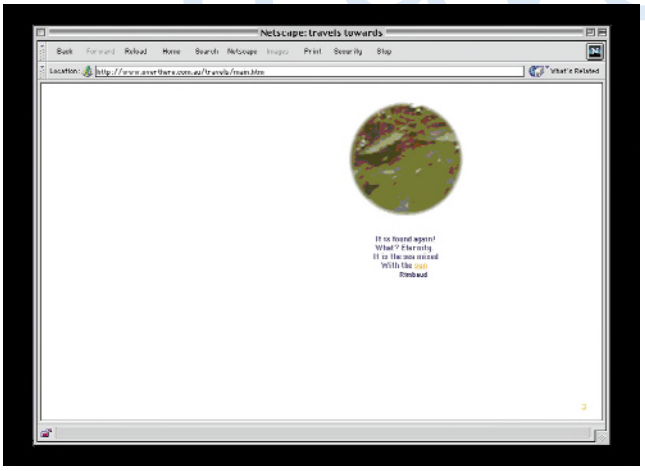


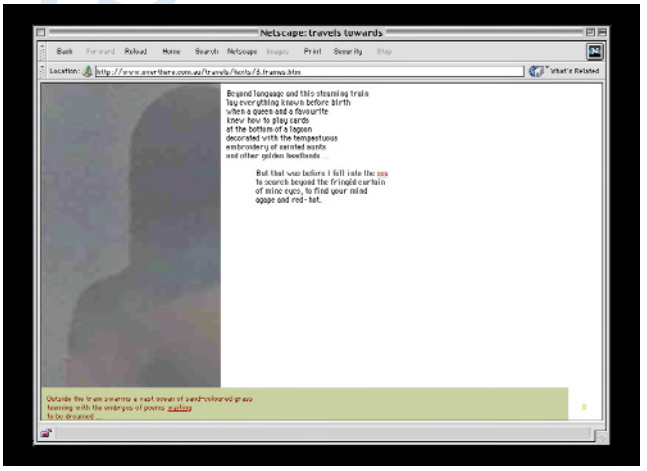
Travels

Robin Petterd
Diane Caney

Travels Towards

overthere.com.au/travels





Existence

Charles Beinhoff
John Ploof
Dorothy M. Gordon webmaster
The Existence of All Things, Past, Present and Future

www.artistical.org/html/bug.html

City

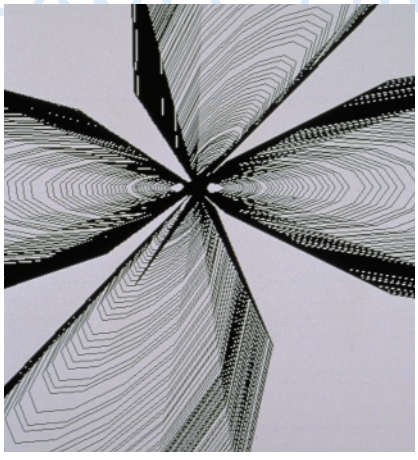
John King
J. Gregory MacDonald
Dorothy M. Gordon
The City

www.artistical.org/html/jk001.html

Expressionism

Joanna Maria Berzowska
Computational Expressionism

joey.www.media.mit.edu/people/joey/x/index.html



Diana Domingues

INTERACTIVITY AND RITUAL: Body Dialogues with Artificial Systems

Digital technologies provide dialogues with artificial systems, allowing acquisition and communication of biological signals with electronic databases. As interfaces and computers capture, manage, and transform signals, they generate new forms of life. In my latest interactive installations, bodies repeat behaviours, simulating a sort of ritual or ceremony with responses in real time. Stored data managed by neural networks offer states of unpredictability, and the adaptive capacity system determines the emergence of a "living environment" in self-regeneration. The variables place us within elliptical zones and build up present times in which the actions of the amalgamated body with complex systems enable exchanges in cyberspace. In a psychic and physical exploration of the environment, mixing natural/artificial, analogic/digital, real/virtual, we experience consciousness propagations and think, dream, and understand our human condition enhanced by technologies.

Dena Elisabeth Eber

Virtual Imaginations Require Real Bodies

Virtual reality (VR) works of art conjure up ideas such as virtual sex, virtual frontiers, and to some, disembodiment. Those who uphold the notion of disembodiment claim that works of art that embrace VR technology necessarily encourage a state that affirms the Cartesian duality in which people can leave Earth, nature, and body behind. I counter this notion because I do not believe that the mind can be separated from the body; rather, the two are inexplicably intertwined.

Although this "Gibsonesque" scenario is rich with metaphors and metaphysical implications, I suggest that any virtual space is an embodied experience because the imagination of the artist and the viewer refer back to the body, to nature, and to the Earth. From the physical reality of Earth and our bodies, we may understand and perceive many more realities, perhaps facilitated by virtual space art installations. In fact, I maintain that even the virtual is real. It is a perception that is a real experience, which makes reference to our encounters with the physical world and our flesh.

Noah Wardrip-Fruin

Hypermedia, Eternal Life, and the Impermanence Agent

We look to media as memory, and a place to memorialize, when we have lost.

Hypermedia pioneers envisioned the ultimate media within the ultimate archive, with each element in continual (versioned) flux and constant new additions - dynamism without loss.

Instead we have the Web, where "Not Found" is a daily message. Projects such as the Internet Archive and Afterlife dream of fixing this uncomfortable impermanence. Marketers, instead, promise agents that will make the Web comfortable through filtering (hiding the impermanence and overwhelming profusion that its dynamism engenders).

The Impermanence Agent operates differently. It begins by telling my stories - my grandmother's stories - and as users browse, the images and texts they pull from the Web are interwoven with her stories. In time, the original stories are lost. New stories, collaboratively created, have taken their place.

Animations

The Audition

A celebration of ham acting: A frog auditions for a part in Hamlet and fails badly.

Derek Flood
Das Werk

Zhen Po:

The Visual Effect of a Seismic WaveField

Scientific visualization techniques are mostly used to depict the information from the simulation data. This video demonstrates that visualization can also be used to generate esoteric visual effects from a 2D seismic wave field derived from simulation data. All the visualization results were created using AVS/Express with various techniques such as value-to-color mapping, contour, isoline, surface plot, and lighting. The final images were composed with Jaleo video editing software.

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Mei-Ling Hsu
Kuen-Meau Chen
Alpha Y. Wang

Producers
Kuen Meau Chen
Alpha Y. Wang
Mei-Ling Hsu
San-Liang Chu
Charlie H. Chang

Contributors
How-Wei Chen
York Chen

The Art of Survival

A chameleon flunks out of camouflage school. Created as a group project by students in the University of Washington's 1998 computer animation program.

Director
Cassidy Curtis

Concept and Script
Jason Ilano

Storyboard
Eugenia Bertulis

Design and Concept Art
Jonnie Chou, Sergio Gonzalez, Jessica Lucas,
Kevin Steffa, Susan Tanney

Editing and Layout
Jessica Lucas, Mark Manca

Character Modeling
Michael Aucoin, Jud Holliday, Jason Ilano, Justin Miller

Set and Prop Modeling
Jonnie Chou, Justin Miller, Veronica Ruckdeschel, Kevin Steffa, Angela Woods

Shading and Lighting
Michael Aucoin, Eugenia Bertulis, Jessica Lucas, Mark Manca, Veronica Ruckdeschel, Kevin Steffa, Susan Tanney, Angela Woods

Motion
Jonnie Chou, Sergio Gonzalez, Jud Holliday, Jason Ilano, Daniel Johnson, Justin Miller, Katrin Petersen, Veronica Ruckdeschel, Angela Woods

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Technical Advisor
Darrek Rosen

Systems Support
Joel Boring

Title Design
Eugenia Bertulis

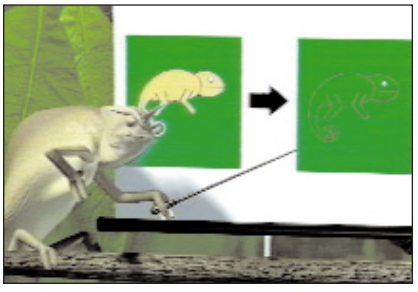
Sound and Music
Bret Battey

Performers
Mark Renner, Linda Antas

Teaching Assistants
Jamie Hecker, Daniel Johnson, Katrin Petersen, Andrew Petty

Special Thanks To:
Ronen Barzel, James Buckhouse, Andrew Glassner, Peter Plevritis, David Salesin, Brad West

Made possible with the support of Alias|Wavefront and SGI



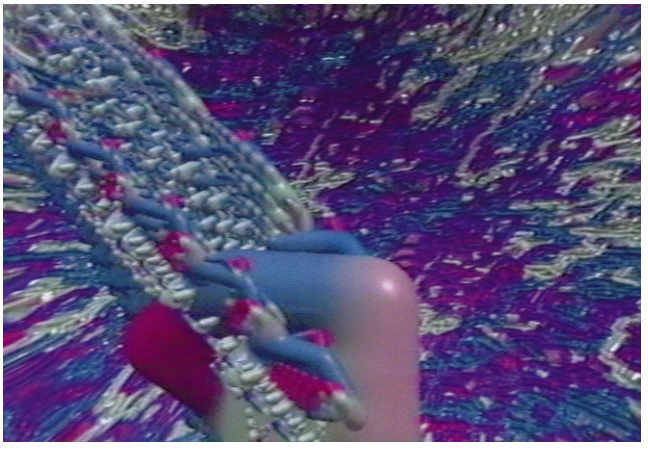
Animations

Don't Pull the Plug!

Video screens, neon signs, and sound systems compete for attention on facades of buildings as EarGuy walks down the yellow-brick street, which is crawling with little creatures. By accident, EarGuy makes an amazing discovery about his world. Further exploration leads him to a central power plug.

Created with Side Effects Houdini on SGI O2 workstations. Depth of field was used to achieve a more film-like quality.

Wobbe Koning
The Ohio State University



Artificial Life Trip

Growing out of pioneering research in applying artificial life to "morphogenesis," (free-form generation of computer-animated 3D worlds), this film spawns a menagerie of sensuous "life forms" that flow and evolve in a geometry-warping dance.

Animator
Yoichiro Kawaguchi

Music
Tangerine Dream

The Giftbringer

An animation that plays on the idea of crossing the boundries from a child's fantasy world into the harsh reality of business, as illustrated in "The Godfather."

Michael Makara
Ringling School of Art and Design

Music
Kim Allen Kluge

Fairy Model
Michael Sanborn

Elytre

Bruno Follet
Heure Xquise ! Distribution

Camille B. Lapierre
Patrick Lachaux
Regis Saillard
Supinfocom (Valenciennes, France)

It's All About The Nose

A bird whose questionable knowledge of physics finds himself in a difficult situation and confronts an unusual opportunity.

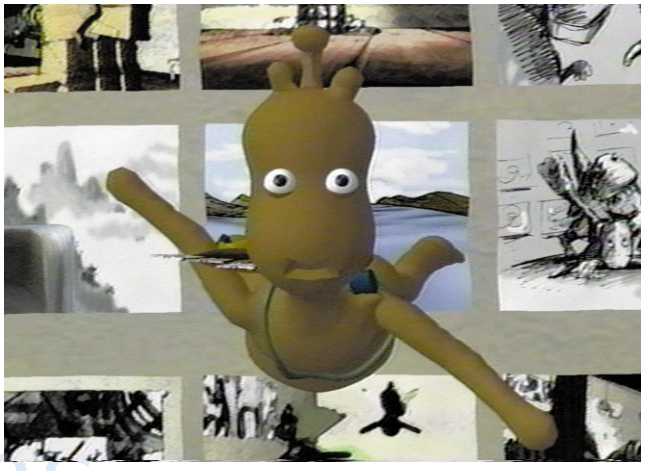
Christos Demosthenous
Ringling School of Art and Design

The Jungle Boy

This 3D computer animation film illustrates an event in a motion picture studio. When two illustrated characters jump into a 3D world, the distinction between truth and fake is completely confused. The animation concludes after a big dispute over who is going to find the answer.

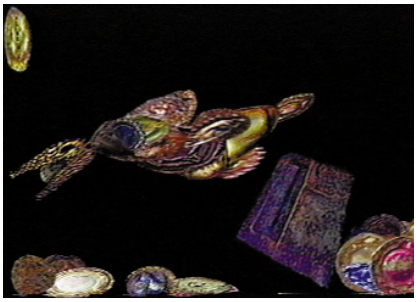
Ming-Huei Shih
Pratt Institute

Software
Softimage 3D
Windows NT



Animations

Animations



Junk Food

This stop-action animation is an experiment with the fundamental techniques of stop-action. Instead of capturing real objects with a camera, a single scan into Adobe Photoshop 4.0 was separated so that all objects were on uniques layers, where they could be moved, enhanced, and distorted independently. Using "high tech" to perform "low tech" animation has many advantages, including: a constant light and image source, motion blur filtering, and the ability to move objects together or indpendently at will. The score was captured and edited on Studio Vision Pro 3.5. Post-production tool: Adobe Priemere 4.0.

Mark Knox

Wriggon

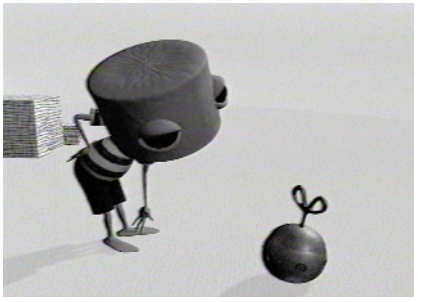
Objects generated in ecological space move and wriggle using "growth algorithms."

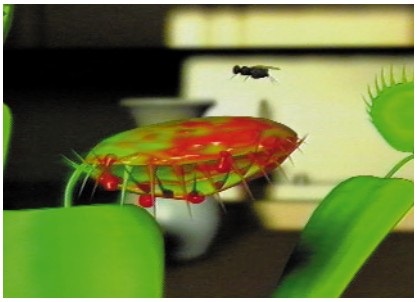
Yoichiro Kawaguchi
University of Tokyo

Object Lesson

In this animated short, Flotsam, our hero, is found wandering through a world of cross hatchings and boxes until he stumbles upon a rather curious device and quickly learns a valuable object lesson. The animation was created with PowerAnimator and RenderMan, and it uses textures created with pen and ink to achieve a unique look.

Dylan Sisson
Andrew Woods
Kyle Hanson





Venus Pie Trap

Accidental discovery can lead to a new role: social-change agent. In "Venus Pie Trap," a pod finds a taste for cherry pie when it misses its intended target: a fly. The other members of the fly trap's collective mind become curious as this pod asserts its individuality.

Daniel Lazarow
Ringling School of Art and Design

Collaborators
Austin McKinley
Chris Chisholm

Gaia

GAIA was made entirely with a propietary program, running on a standard PC, for creating series of images based on the evolution and mutation of image-generation algorithms. At each iteration, the user chooses one of the proposed images, which acts as the progenitor of a new series, and so on. The procedure is inspired by the evolution of life. Following a "genetic code," the forms are born, reproduce, and die, but instead of "survival of the fittest" the rule is "selection of the most attractive."

Santi Fort
Universität Pompeu Fabra

Programmer
Juan Luis Abadia

Letters

A laboratory assistant discovers a strange substance that seems to be intelligent and inveigles the assistant's dog to eat it. The dog becomes an angry mutant being, and the film ends in a life-and-death struggle.

Thomas Haegele
Matthias Wittmann
Carolin Grosser
Filmakademie Baden-Wuerttemberg

Contributors
Andreas Krein
Eike Wichmann

Software
Maya 1.0 and 1.5

Hardware
SGI 02 R 10000

Techniques
Combination of live action and CG elements

Animations

Chair

Chair

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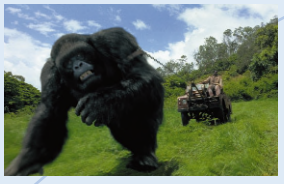
Computer Animation Festival

Brian Blau
SGI

Contents

Welcome friends and colleagues – to this year's Computer Animation Festival!

The following pages represent the year's best in computer graphics animation. Personally, I enjoy the wide range of interests brought together: scientists, artists, industry leaders, students, entrepreneurs – makers of visual magic. For this year's Festival we have three main attractions to heighten the excitement during our one week in August: The Electronic Theater, the Animation Theaters and the world premier of *The Story of Computer Graphics*.



Storytelling

Putting a stake in the ground and keeping it there can be difficult. This year I decided to move the Festival in a direction that some believe is inappropriate, while others consider it obvious. This year the Computer Animation Festival has a theme, a simple word that enfolds much meaning: Story.

Since its inception, SIGGRAPH and its Electronic Theater have showcased technical achievements in science, art, and entertainment. Consumer-based innovations have advanced the state of the art in computer graphics rendering while new and easily accessible hardware and applications have made everyone a potential creator. The Web has given the power of publishing to the people and made collaboration easier. Computer graphics and multimedia have transformed the way we communicate. These are some of the reasons why Story is so important. With stories we define the present, maintain the lessons of the past, and predict the future. We educate our children and teach ourselves. Computer graphics is now the campfire of choice for the scientist, artist, designer, and teacher – all storytellers.

Story

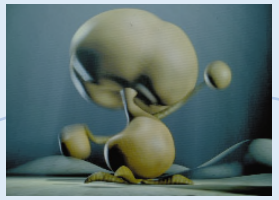
Electronic Theater and Animation Theaters

The aura of this show is half of the fun, hanging with friends and co-workers to see the year's best animations. Where else can you scream and shout about the coolest characters, the best physics, the hottest textures, the awesome special effects and the most heart-warming stories? The Electronic Theater got its start 25 years ago at the very first conference. The format, presentation, and audience size is much different today; perhaps its best aspect is how it still brings together our community. This collection of film and video is outstanding.

The Animation Theaters showcase many of the top computer graphics works produced during this last year. Each day in two Festival screening rooms, from morning till night, SIGGRAPH attendees can view these wonderful collections. Visual Poetry, Black & White, Comedy, Visual Prose, Commercial FX and Games, Visualization and Technique, Folklore and Love Tales make up the collection.

The Story of Computer Graphics

The Story of Computer Graphics will have its world premier at the opening night of the Computer Animation Festival. Two years in the making, this documentary chronicles the history of both the science and the industry, told by the pioneers who brought it into existence. SIGGRAPH and the Festival are proud to showcase this feature-length documentary.



Acknowledgements

Each year, this Festival could not happen without the gracious help of many individuals. First, I could not have made it all the way through this without my family's support: thank you Trish and Max. Tanya Anguita, my wonderful assistant, has been the glue that holds the effort together with her unique style and loving words. Diane Piepol and Mary Beth Ray did the actual work that made the Festival a reality. My heartiest thanks goes to these three.

To the jury, who have the ultimate responsibility for the show, goes my gratitude and thanks. You were honest, incisive, and endured countless trillions of pixels with good nature and teamwork. The show you have distilled is excellent.

The following companies provided enormous support during the production of the Computer Animation Festival. SIGGRAPH and the graphics community extend our gratitude for all your help: Industrial Light & Magic, SGI, The Post Group, CBS Animation, and Rhythm & Hues.

Also, a much deserved round of applause to several people who helped in diverse and unique ways: Jill Smolin, Clark Dodsworth, Warren Waggenspack, Nancy Reynolds, Carrie Ewert, Robin Myran, Joe Takai, Yves Metreaux, Bill Kroyer, Barry Weiss, Joan Collins-Carrey, Shawn Hopwood, Kathryn Saunders, Ines Hardtke, the Bay Area Video Coalition, Suzanne Datz, and Kevin Monahan. And finally, thank you to my muse, Juliane Hadem.

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The Story of Computer Graphics

From its early development as an obscure topic of research to its widely accepted role as an important communication tool, computer graphics has a rich history of human accomplishment. This movie attempts to document some of the most compelling stories behind the striking graphics and technology that we take for granted in today's imagery. This is the "human" story of the pioneers who are revolutionizing visual communication, through a community with its own unique culture.

The Story of Computer Graphics chronicles the history of the industry, its impact on society, and the excitement of future possibilities. As an official SIGGRAPH history project, care was taken to produce a lasting document that will inform and inspire for generations to come, and appeal to a broad audience beyond the computer graphics community.

The documentary educates the general public about computer graphics. It would be suitable for presentation at educational institutions of all levels. It also benefits the computer graphics community by increasing awareness of the history, impact and direction of computer graphics. This awareness will increase employers' understanding of the special needs and situations of employees working in computer graphics.

The Story of

The following companies and organizations are sponsors of *The Story of Computer Graphics.*

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The Walt Disney Company

Content Committee

In April 1997, the content committee met with the movie production team and generated 40 pages of content. This content was used as a resource during script development. The content committee also checked the final script for errors or omissions.

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Executive Producer (for SIGGRAPH Studios)
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Steve Silas

Co-Producer
Joan Collins

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Computer Graphics

This is the inaugural year for SIGGRAPH's special recognition awards for outstanding entries in the Electronic Theater. The jury chose two excellent works from more than 650 entries submitted. These films represent extraordinary achievements in computer graphics technique and storytelling. Their broad appeal and their presence in the Electronic Theater will benefit the creators and the community. Congratulations to the winners!

Special Recognition

Masks

Piotr Karwas | Filmakademie Baden-Wurttemberg

A search for identity. A faceless person constructs endless masks to find the perfect one. During the last desperate try, the protagonist scratches his faceless face.

Computer animation was completely done with Softimage 3D and an inverse kinematics technique. The film was rendered with Mental Ray in D1 resolution and resized to 2K for film exposure. Everything is textured with hand paintings done using acrylic paint on paper and adjusted for 3D purposes in Photoshop. Depth of field and motion blur were mostly done with post-process shaders. Almost all of the composited parts were done in Discreet Logic Flint and Flame, and a few in Softimage Eddie. The film was edited on Avid Media Composer. Online editing was done on a D1 system.

Most of the work was done on SGI and Intergraph workstations.

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Bunny

Chris Wedge | Blue Sky Studios

Baking alone in her kitchen, tattered old Bunny receives a troublesome late-night visitor from the deepest woods - or deeper. A hairy moth, as battered as Bunny is, seems to be stalking her, and her attempts to remove it only make it more insistent. What is it about this nocturnal pest that stirs her deepest fears and memories? To find out, she must go through an emotional metamorphosis that sheds a whole new light on this quirky but heart-warming tale.

The film was animated and modeled using Softimage. The set and objects in Bunny's house were created using CSG (Constructive Solid Geometry). Adobe Photoshop and Amazon were used for texture painting. The rendering was done on a Compaq Computer Corporation AlphaServer RenderPlex system on 14 machines that had a total of 164 processors.

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Digital Unix Group for technical support and assistance
Enterprise Systems Lab for systems test support

Extra special thanks to Steve Briggs for making this film possible.

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M. C. Leon

Leon Gerald, the SIGGRAPH 99 Electronic Theater MC, is animated in real time, with Improv Technologies software, so that he can respond to the audience. He appears four times throughout the show. During the the pre-show, he struggles with the malfunctioning teleprompter and prompts the audience to respond to him. Then, still struggling with the teleprompter, Leon introduces the show. Next, he appears in a mid-show backstage interview with another animated character, where he can only talk about himself. And finally at the end of the show, Leon is overwhelmed with rejection as the audience leaves the theatre.

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4

4 is an animation about perception. It uses the power of cinema to feed the viewer fragments of a total picture. As the narrative unfolds, the scene is not what the viewer expected. The dog in the animation is not quite like any other. He is four.

Created with the Alias|Wavefront 3D software package.

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A Letter from the Western Front

The haunting narration of a young American soldier echoes across battlefields of light and shadow in this love story set against the sweeping setting of World War I.

Deep in the trenches of Belleau Wood, France, a young doughboy named John struggles to finish a letter home to his beloved wife, Sara. The soldier has just received orders to charge across no-man's land and is writing what may be his final words to the woman he loves. After the fight, will his thoughts be heard?

A Letter from the Western Front was produced with Adobe Photoshop, Adobe AfterEffects, and Winsor & Newton watercolor paints. After the original paintings were scanned, software was used to composite and transform each element into the "multiplane" environment of the story.

Produced at New York University's Tisch School of the Arts, this student film demonstrates how computer animation can be used to create a dramatic story of love and loss against the historical backdrop of World War I.

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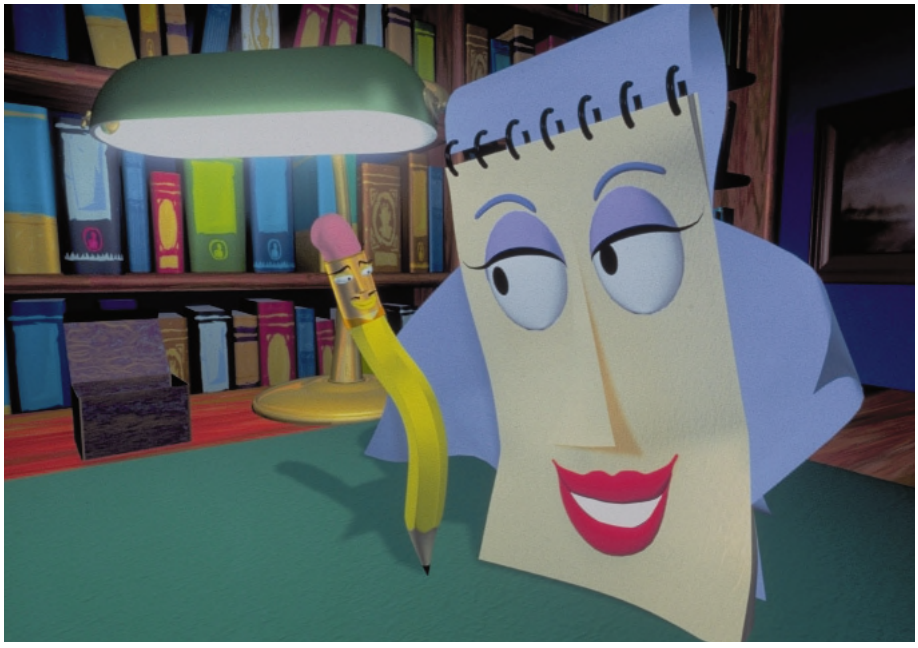
A Little Curious (Pad & Pencil Song)

HBO Family's *A Little Curious* aims to teach vocabulary words and concepts to pre-schoolers through an original cast of characters. The stars of *A Little Curious* are all inanimate objects that can be found in a pre-schooler's world: Doris the Door, Mr. String, the Shoe Family, Mop, Little Cup, and Bob the Ball. And then there's Pad and Pencil. Their love for each other is undying and always over the top.

The Pad and Pencil Song, with lyrics by Alana Burgi and music by Don Sebesky is a tribute to the most romantic office-supply couple you're likely to ever meet. In this CG dance, Pad and Pencil engage in a pas de deux across the desk blotter. Theirs is a love that will stand the test of time. Pencil expresses his love for Pad through intimate portraiture on his favorite medium (Pad). In turn, Pad enfolds Pencil in a lover's embrace.

The CG portions of *A Little Curious* are animated and rendered in Maya. Both Pad and Pencil are animated principally using IK spline and lattice deformation. Lip synch is done with a series of replacement mouths.



Director
Steve Oakes

Producer
Christine Walters

Animator
Patrick Porter

Lighting and Textures
Owen Demers

Animation Director
Dave Baas

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Rae Morris
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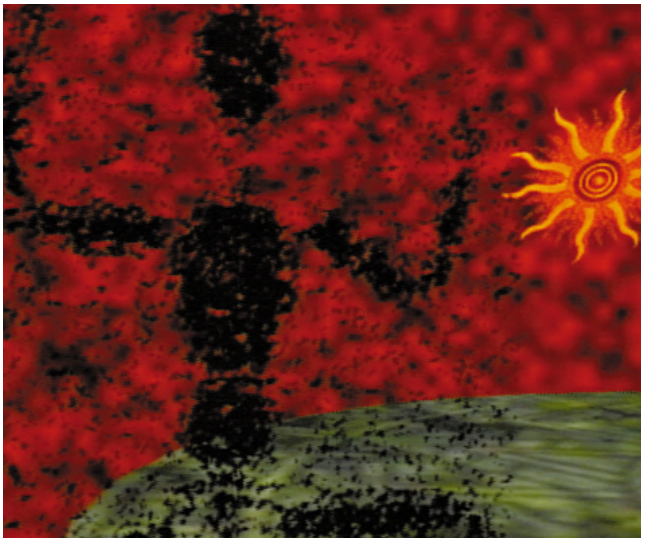
The Artifice of Dimension

An exploration of the myths and symbols that pre-date human language. The motifs used in this visual communication come from the surrounding environment: water, plants, stone, animals, etc. Rediscovering this archaic language using the rapidly advancing science of visual technology creates a strong contrast between content (ancient, natural) and form (modern, computerized).



Directors
Conor Patterson and Farrella Dove

Producer
Steven Churchill

Music
A Positive Life

Software
Synae

Hardware
PC

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Artistic Evolution

In this satirical look at the state of the arts, several characters, each more evolved than the last, step into the spotlight and try to impress a faceless director and an unruly crowd.

Artistic Evolution was animated and rendered on a single Mac G3 using Lightwave 5.5 with no commercial third-party plug-ins. The concepts learned from each character design were refined and re-used as the characters themselves evolved and became more complex to animate.

Director/Producer
Doug Pfeifer

Collaborators
Todd Larson, Eddie Lee

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The Battle Scene

This video introduces a 3D, multi-player fighting game.

Software
Softimage, Mediaillusion

Hardware
SGI Indigo2, O2, WinNT(DualP2400)

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Bike

In this roadmovie designed as a loop sequence, the story is constructed by switching the point of view. The 3D animation was done in Softimage 3D. The soundtrack was done in Mathematica. Frequencies were computed by mathematical functions and layered with short analog noise impacts.

Director/Producer/Animation
Dietmar Offenhuber

Sound
Markus Decker

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Dietmar Offenhuber
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didi@fl.aec.at

Bill Gates' Basement

A one-minute animation done in 3D Studio Max showing Bill Gates' basement. Can Bill Gates' success be attributed to the fact that the product is called "Windows" and not "Gates"?

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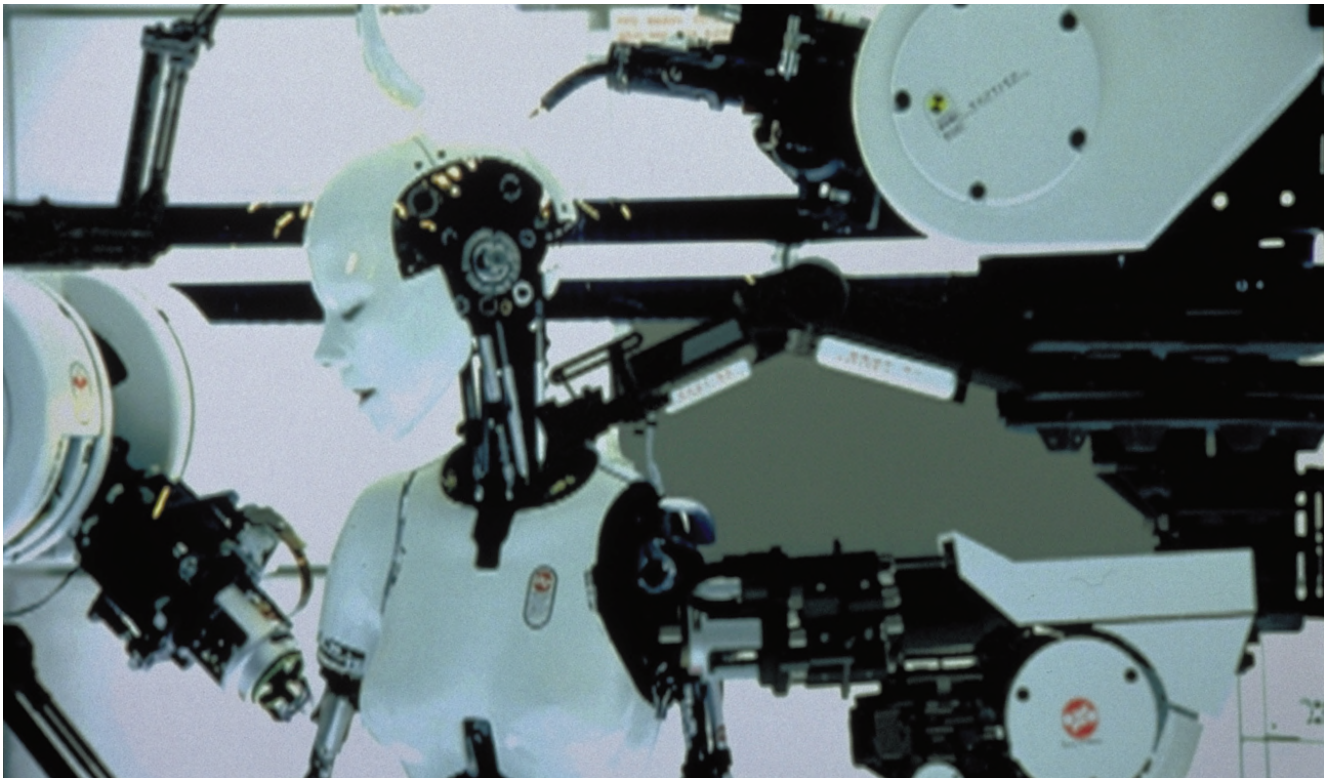
Bjork: All Is Full Of Love

This film depicts two white androids being assembled and falling in love. Computer graphics were used in two main areas: to create moving parts for the androids (heads, necks, arms), and to create large additional robotic arms, which were built and animated to suggest work being done on the androids throughout the film. Flame was used throughout to restore elements of Bjork's face onto the 3D and real robots and finalize the effect of an android with human characteristics.



Animator
James Mann

Flame Operator
Pasi Johansson

Animator
Herve Dhorne

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Body Story

Six human dramas that reveal a fascinating insight into how our bodies miraculously cope with the rigors of everyday life. From the natural miracle of childbirth to the shattering effects of a heart attack, we begin to understand the wonders of the secret world within each of us.

In one episode, Body Building, a girl breaks her arm when she falls from her bicycle. We see how her body instantly reacts to this crisis and ultimately repairs the bone to an even greater strength than before. This "x-ray" sequence, where we see the bone actually snap, was created by 3D rotoscoping a skeleton to match the live action in 3D Studio Max and then adding a negative look and glows in Quantel Hal and Edit Box.

Power Animator's integrated particle system was used to dynamically create the blood pouring into the injury inside the arm. The graphic of the spinal column carrying messages to the brain was achieved with a combination of volumetric lighting and raytraced shadows on NURBS models of a full inverse-kinematic joint system.

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Head of 3D
Peter Bailey

3D Animators
Stuart Love
Mark Fox
Rory Fellowes
Andy Wheeler
Francis Offei
Tia Perkins
Nick Mackie
Chelfyn Baxter
Chris Hooper

Art Director
Chris Hart

Production Assistant
Katrina Boyd

Technical Support
Russell Curgenven

Compositor/Designer
Adrian Woodward

Hal Operator
Dave Corfield

Collaborator
Wall to Wall Television

Client
Channel 4

Software/Digital Processes
Power Animator, Maya, Softimage, 3D Studio Max, Quantel Hal

Boing

A short-lived adventure about a rock guy and an annoying bouncing ball, created with Electric Image. The animation envisions a world that allows a humanoid character to run, jump, fall, bounce, etc.

Director/Producer
David Kury

Collaborators
Mike Hertlein, Michael Farrell, Dean Hovey

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Breaking Objects

This video demonstrates a simulation technique for animating breaking objects. By analyzing the stress tensors computed over a finite-element model, the simulation determines where cracks should initiate and in what directions they should propagate. The system dynamically re-meshes the models to accommodate these fractures. Varying the shape of the objects, the material properties, and the initial conditions of the simulations, creates strikingly different effects, ranging from a wall that shatters when it is hit by a wrecking ball to a bowl that breaks in two when it is dropped on edge.

For more details, please see the SIGGRAPH 99 Paper "Graphical Modeling and Animation of Brittle Fracture."

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Georgia Institute of Technology

Wayne L. Wooten
Pixar Animation Studios

Jessica K. Hodgins
Georgia Institute of Technology

Brad Y. Andalman
Pixar Animation Studios

Special thanks to Larry Gritz, Pixar Animation Studios

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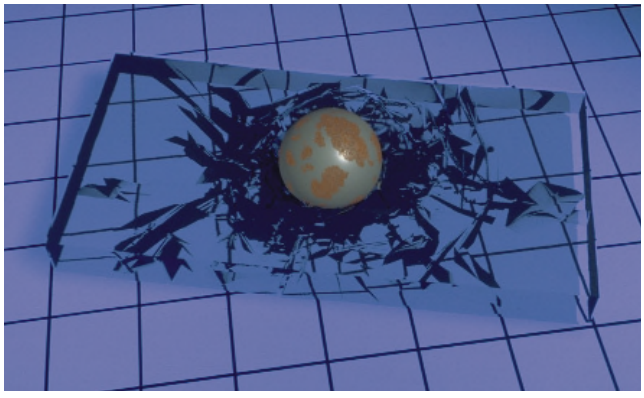
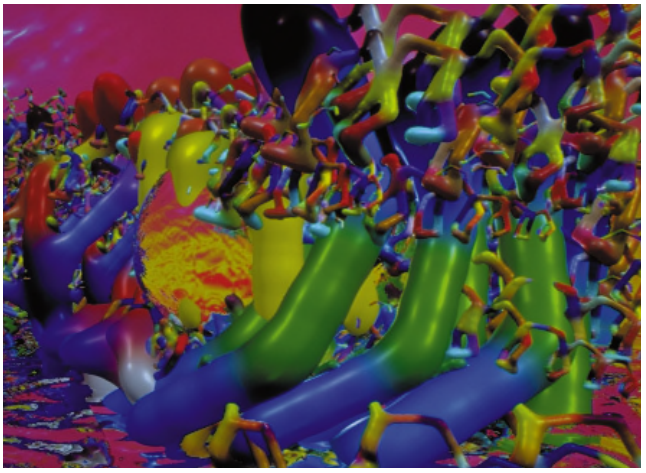


Brillia



This art piece is a representation of "self-organized color." Complex objects are generated by a "growth-model" algorithm, which automatically gives colors spatial configuration and dynamic pseudo energy.

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Buddies

A lone cactus looks on as a group of cacti party and mingle in the distance. He soon realizes that the fun is well beyond his reach. After a brief moment of sadness, he quickly devises a plan to cure his loneliness.

Director
Robin Roepstorff

Producer
Ringling School of Art and Design

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Buzz Off

A hungry mosquito seeking food.

Software
Alias|Wavefront Maya, PowerAnimator

Hardware
SGI O2

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The Cambrian Burgess Shale Creatures: Early Evolution of Animals

In this video of the Cambrian sea bottom more than 500 million years ago, beautiful small creatures move along the sea floor. Their bizarre shapes were reconstructed from fossils, which were discovered in the Burgess Shale of western Canada.The complete animation is presented on an interactive system in the Gamagori Natural History Museum in Japan.

Director
Tetsuhiko Awaji

Producer
Shun-ichi Shimizu

Science Supervisor
Simon Conway Morris

Science Illustrator
Richard Tibbitts

Contributors
Mitsunori Kabashima, Hiroki Ogino, Ryu Nakai, Kenji Tanaka, Yujiro Hato, Takeshi Nakayama, Chihiro Miyagawa, Masanari Miyoshi, Masaru Manabe, Yutaka Shiga, Tomoaki Yokota

Software
Alias|Wavefront Maya, Composer
Discreet Inferno

Hardware
SGI O2, Power Challenge XL
Dell NT Workstation

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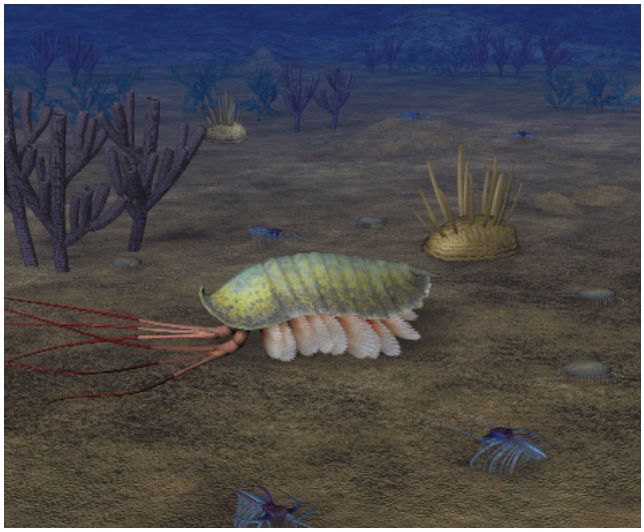

CarouseL

This is a story about an old merry-go-round and Bob, the ride operator. On the merry-go-round's last day, a miracle happens: the carousel suddenly comes to life one last time.

Director
Hiroshi Shiokawa

Producer
Ami & FunnyBoys

Collaborators
Hiroshi Shiokawa, Atsumi Yoshimura, Nobuya Sato, Masashi Fujiura, Susumu Ishihara

Software
Alias|Wavefront PowerAnimator, MAYA, Composer, Adobe Photoshop, Adobe Illustrator

Hardware
SGI O2, INDY

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Case #M1251

This piece depicts the drama of a murder scene from an omnipotent and analytical point of view. The strategic use of editing, lighting, rhythmic elements, camera movement, and cutting reinforces the concept and emotion of the piece. Modeling, animation, and lighting were done on Alias|Wavefront Maya 1.5. Post-production editing and special effects were done in Alias|Wavefront Composer and Adobe Premiere.

Director
Geof Pelaia

Producer
Ringling School of Art and Design

Make-Up Effects
Mikkel Caiafa

Photography
Tito Fuentes

Autopsy Room Background
Jason Shulman

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Censor-Sheep

This piece shows the difficulties that artists deal with to express themselves. Too many authorities control what we see, hear, and read. Those who control the venue through which the art is displayed are often overly concerned with public acceptance and financial gain. The result is a biased and filtered view of what art is, and what it could become.

The creative process for this piece involved storyboards (many of them critiques), sheep sketches, a little acting, censorship research, and animation.

Director
Dani Rosen

Producer
Ringling School of Art and Design

Collaborators
Jim McCampbell, Scott Adams, Roxie Thomas, Dee Hood, Maria Palazzi, Bob Melville, Phil Chiocchio, Claudio Cumbie-Jones

Software
Alias|Wavefront Maya 1.5

Hardware
SGI O2

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www.ringling.edu/~drosen

Chancy

Chancy is a musical story about a guy looking for happiness. "If I had a cat, I would call it Chancy. Surely a cat named Chancy would bring happiness. But wait! Perhaps a best friend named Chancy! Or a girlfriend! Or a wife named Chancy!"

And so our lonely hero continues down his misguided path, expecting others to bring him happiness. The look of *Chancy* is an experiment in new ways to use 3D animation. It is also loaded with single-frame puzzles that can only be seen when the videotape is paused.

Director/Producer
Mitch Butler

Music Producer
David Alan Earnest

Female Voices
Rocci Johnson

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mitch@mitchbutler.com
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Cino

The story of the loneliest boy in the world and his discovery that his dreams are just as empty as his everyday life.

Software
Nworld-3.2, Adobe Photoshop 5.0, Adobe Premiere 5.0

Contact
Thomas Inesi
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Clock

There are lots of things in this world that may not be known to us: people, animals, nations and so on. We cannot know everything. But always, some things are there. Of the thousand years of the past, we don't realize beyond what we have, what we are in, and what we know. People tend to not accept differences. Wars and racial discrimination are good examples.

In this animation, the main character represents ourselves. The clock represents the world that we don't know. But there is a combination and coexistence between one and the other. They exist together without fighting, hostility, and jealousy.

This idea is approached with humor, because serious reflection is not good for adults or children. People want to laugh.

Software
Softimage 3.8, AfterEffects 4.0, Photoshop 5.0, Premiere 5.0

Hardware
Pentium 2 PCs

Contact
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The Condiment League

The Condiment League is a coming-of-age story about a young hero, Creamer Boy, and his quest to rid the world of evil. His single-handed attempt leads him into trouble, but his Super Condiment mentors come to his aid and battle the evil forces in the Croc of Doom.

It is said that there are no new stories, just different versions of the "classic" few. Void of any pretense, the directors make no excuses regarding appropriation from their favorite media influences, in this condiment-versus-condiment tale.

Directors
David Elliott, Jerry Chambless, Jason Alexander

Producer
Ringling School of Art and Design

Collaborators
Rusty Von Hess, Jamie Copella, Janine Elliott, Liz Alexander, Michelle Chambless, Maria Palazzi, Phil Chiocchio, Jim McCampbell, Vincent Warren Jr., Woody Smith, Ryan Mansfield, Dani Rosen, Brian Burks

Software
Alias|Wavefront Maya, Adobe Premiere, Adobe Photoshop, Alias|Wavefront Composer, Points of Interest (student-developed cartoon shader)

Hardware
SGI 02

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Converging Flows

This pictorial illustration of thoughts and images was conjured while reading the Tao of Physics, by Fritjof Capra. Still images were transformed into moving landscapes to compose a reflection of time as a cycle.

Director
Stanley Craig Bowman

Producer
Ringling School of Art and Design

Collaborators
Stan and Betty Jo Bowman, Jennifer Fasanello, Maria Palazzi, Carl Brisco, Nancy Adams

Software
Maya 1.0, Composer 5.0, Adobe Premiere 4.2, Adobe Photoshop 5.0

Hardware
SGI 02 Workstation, Mac G3

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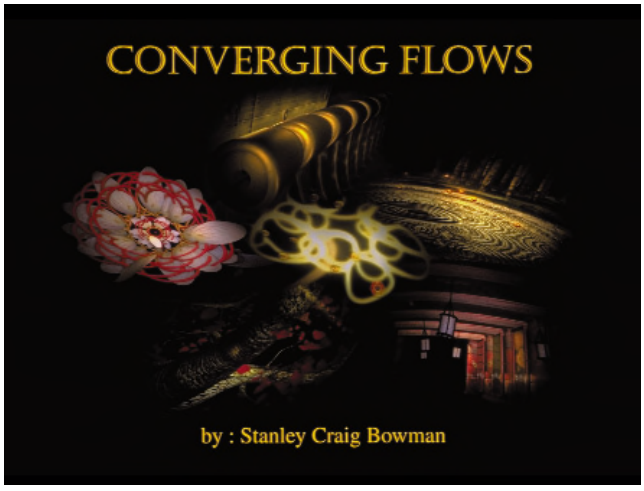

Deep Canvas in Disney's Tarzan

For Tarzan, Walt Disney Feature Animation developed a process called Deep Canvas that enables traditionally trained artists to paint fully 3D paintings through which a camera can freely move.

In response to an unusually difficult problem (animating 10 minutes of painterly looking, densely lush jungle with a relatively small crew), the programming team wrote software to interpret, based on a 3D database, the intended location of each and every brushstroke in a painting, then actually repaint that painting over and over from various camera angles. As the scene progresses, more and more brushstrokes are added to fill in gaps from the previous frames. In this way, artists (with considerable help from a technical director) are able to use their artistic intuition to create entire 3D environments that can intercut seamlessly with the 2D world of the animated film.

This clip demonstrates how a portion of one of the scenes was painted and shows several of the most dramatic Deep Canvas scenes from the film.

Director (Movie)
Kevin Lima and Chris Buck

Director (Submission)
Eric Daniels

Producer
Bonnie Arnold

Collaborators
Walt Disney Feature Animation Team

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The Delivery

The Delivery parallels the classic B-movie horror style, establishing a mood of fright and general spookiness. However, our protagonist (the unwavering pizza delivery boy) enters the scene ignorant and contemptuous of the blatant signs of terror... and thus meets his ignominious demise. All this is presented in a semi-realistic format.

The production was realized through Softimage 3.8, with extensive use of Mental Ray and Eddie compositing. SGI O2 workstations produced and rendered the images, and Avid provided the sound editing.

Directors
Michael Brunet and Christine Arboit

Sound Editing
Christian Gironne and Martin Millette

Teacher
Jean-Philippe Lafontaine

Producer
College Inter-Dec

Sound and Music
Sound Ideas

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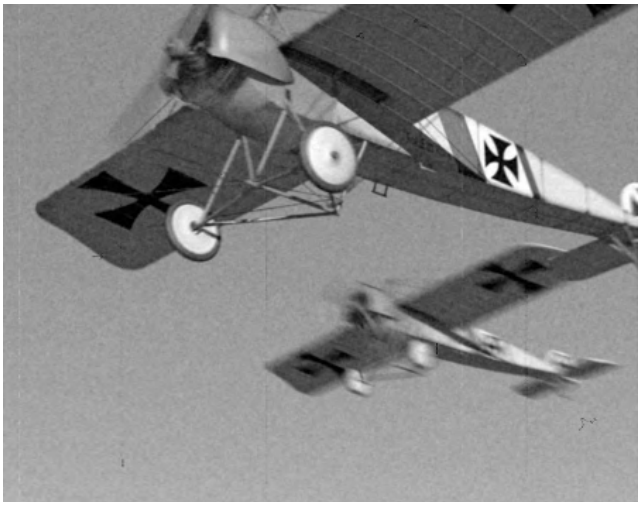
Der Eindecker Walzer



It is sad that so soon after the Wright brothers, humankind would be engaged in slaughtering each other, in what was until then the un-bloodied sanctuary of the air. This piece is dedicated to "those whose only wish was to fly."

The Fokker Eindeckers were the deadly carriers of the "Fokker Scourge." As airplanes, they were technically inferior, but they were one of the first aircraft equipped with a machine gun designed to shoot through the propeller. Despite this dubious distinction, the monoplane Eindecker is known for its simplicity in design. The airplane dances to Johann Strauss's "Kunstlerleben," which was an extremely popular waltz during the Great War.

The animation is entirely CG, rendered in DV format. It was modeled, animated, and rendered on Lightwave.

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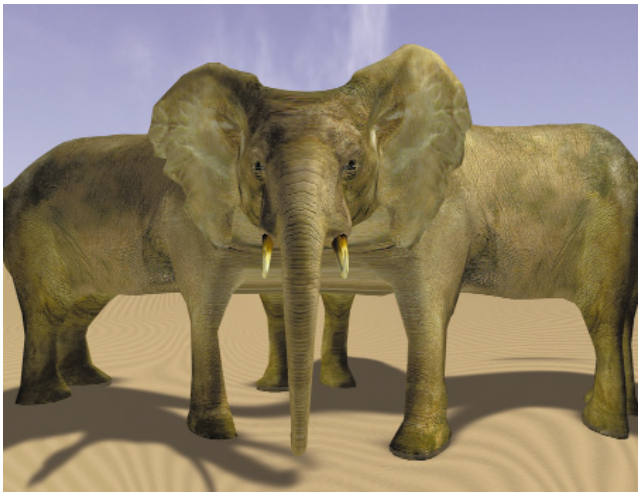
Desert Dreams



What can we see when our notion of "viewpoint" is expanded? In a "multiple-center-of-projection image" (described in the SIGGRAPH 98 paper "Multiple-Center-of Projection Images"), each column in the image is acquired by a different camera location. The "camera" in these images is no longer a single point in space, but rather a 3D curve that can twist through a scene and surround objects. The resulting image captures many different viewpoints simultaneously and may exhibit strange distortions, which are impossible to create with conventional modeling and rendering tools.

Director/Producer
Paul Rademacher

Collaborators
Michael North, Todd Gaul

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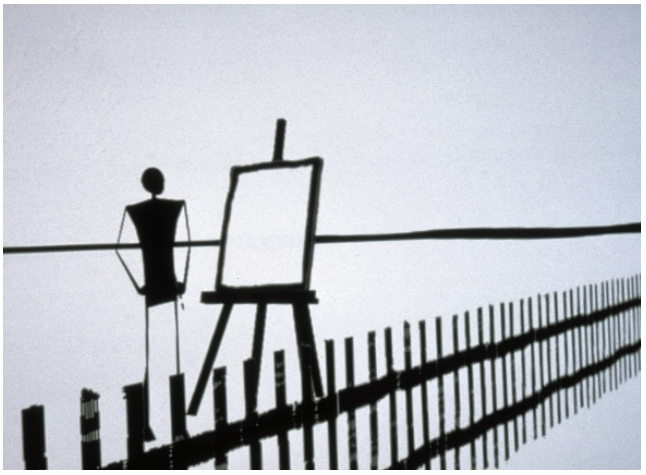

Division

A tragic riddle about a gardener who encounters a painter in a wasteland.

Director/Producer
George M. Nadeau

Music
Ian Quinn

Software
3DS MAX, Painter, Premiere

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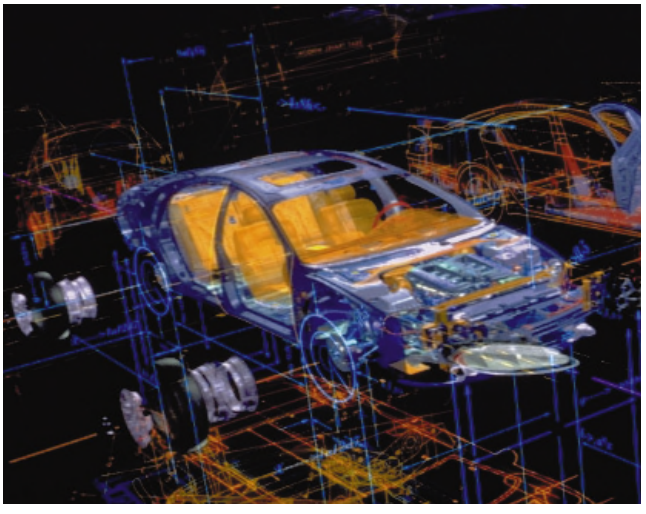

Dodge Perfection

In a journey beyond words, the new Dodge Intrepid travels through worlds that could only be imagined and rendered with the newest of mindsets and technologies. The car itself is transformed through a series of eye-opening, if not mind-altering, states via the actual engineering CAD/CAM data and thousands of lines of proprietary software. Free your code and the mind will follow!

Director
Terry Windell

Producer
Abbe Daniel

Collaborators
Irene Kim, Rafael Castelblanco, Tom Wichitsripornkul, Clay Budin, Bob Hoffman

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Dr. Strangeheight

A man finds romance and self-confidence when he chooses the correct footwear. Student project created in Softimage.

Director/Producer
Keith Kramer

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Dragon Gate

Dragon Gate is based on a Chinese folk tale. Versions also exist in other Asian countries. Dragons are not born like other creatures. They are created from carp who leap the magic waterfall at Dragon Gate. The journey from the home of the carp to Dragon Gate Island is long and dangerous. Each year, the biggest and strongest fish form a convoy and prepare to leave the river. Only rarely will a carp succeed, and the race is not always to the swift. This movie was created over five summer vacations by students at the University of Otago using locally produced software.

Director/Producer
Geoff Wyvill

Animators
Melanie Abercrombie, Peter Ashford, Garry Downes, Jason Elder, Jeremy Graveson, Jayson Mackie, Tracy Mason, Hayden Munro, Kylie Robinson, George Sealy, David Stevens, Stephanie St. John, Joseph White

Music
Anthony Ritchie

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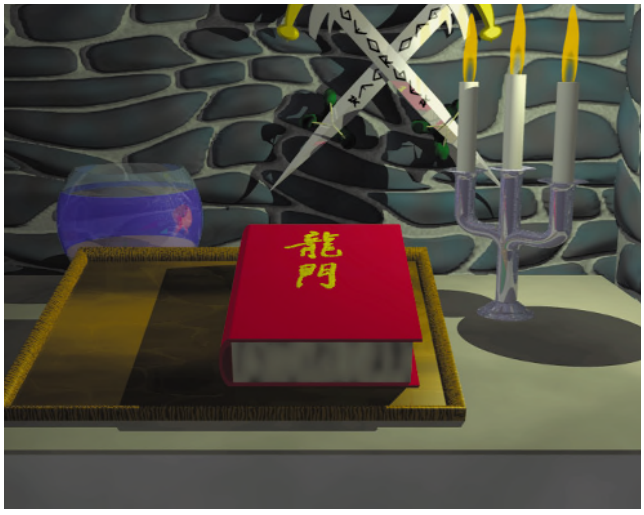
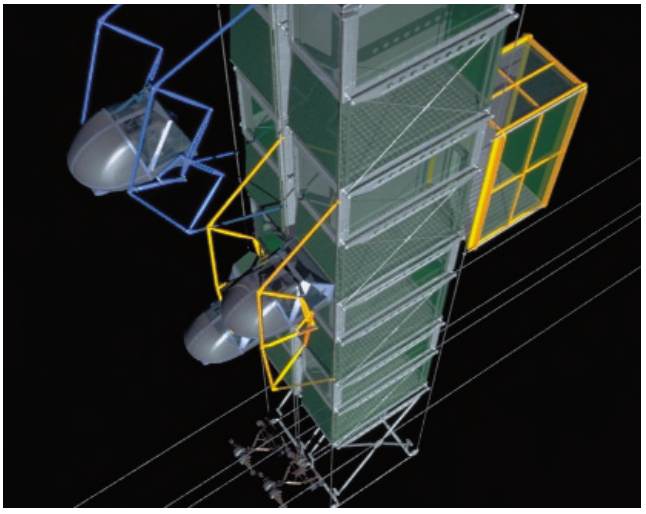


Drive-In House



In the 1960's, Michael Webb, a young British architect, explored the future of our living environment. His Drive-in House project envisioned an integration of habitation and transportation. This film is an attempt to illustrate the transforming mechanics, the sense of speed, and the experiential nature of his machine.

According to the original description by Webb, the system consists of a specially designed vehicle running on trucks and high-rise building structures with mechanical cranes. When a vehicle approaches a building, it drops its chassis, and the crane picks up its body, elevates it along the side of the building, and plugs it into an apartment.

To accurately depict the mechanical transformation process, the inverse kinematics technique was used to compute the positions of transforming components, which are interconnected through pins, rollers, and pistons. To simultaneously understand the elegance of the mechanical movements and the experience of the driver, multiple cameras were placed inside and outside the vehicle and frequently switched.

Directors
Takehiko Nagakura, Marlos Christedeulides

Producer
Takehiko Nagakura

Collaborators
Marios Christodoulides, Michael Webb, Kent Larson

Software
Alias|Wavefront Studio Version 7.5.

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The Duck Father

This short cartoon-like animation tells a very simple funny story: A naughty rabbit notices three ducks. He has a good idea. He runs to them and shoots them and shoots them and shoots them! Then a big, weird black shadow looms…

Director/Producer
Tomoyuki Harashima

Hardware and Software
SGI O2, PowerAnimator

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El Arca/L'Arche

An old sky traveler tosses little heavens into the air.

Director
Rodrigo Munoz Kuri

Producer
Atelier d'Images et d'Informatique de l'Ensad

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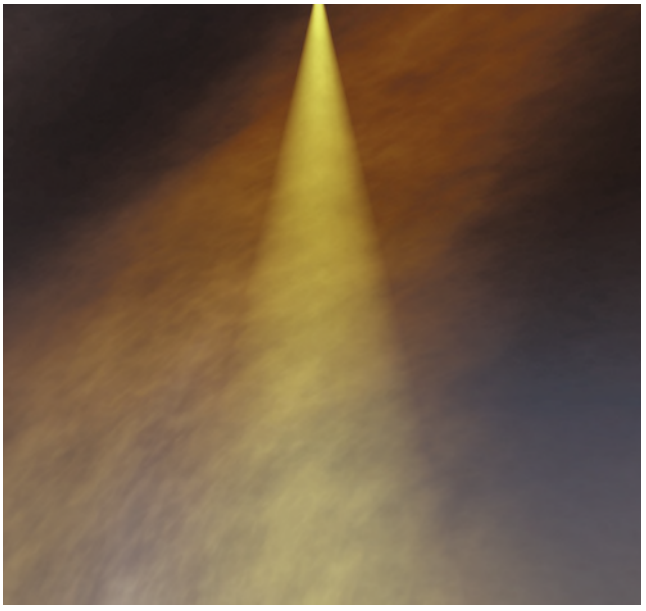
Elements in Transformations #2



Elements in Transformation #2 attempts to explore the symbolic systems of cosmos and consciousness through the evolution and transformation of elemental forms, to create a spiritual and sensual experience. Circles and spheres appear as the whole as well as the units that form the whole (the ultimate visual form of life), which symbolize the oneness of body and spirit, the oneness of human inner and outer worlds.

Director/Producer/Animation
Ying Tan

Music
Jeffrey Stolet

Software/Hardware
Alias|Wavefront PowerAnimator 8.0, SGI 02

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En Derive

A town next to the sea. A man is looking through his window. He imagines the tragic events which take place around him.

Director
Patrice Mugnier

Producer
Aii Ensad (Atelier d'Images et d'Informatique de l'Ensad)

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Evian: Babies

How does one recreate complex aquatic ballet choreography with one-year-old children? Twenty babies, six nurses, nine days of pool shooting, eight hours of dailies, and eight weeks of post production generated 45 magic seconds in which babies execute an Esther-Williams-inspired water ballet.

Director
Jean Pierre Roux

Digital Effects
Mac Guff Ligne

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Evolution in the First Person

This thesis computer animation about the animator's first pregnancy and delivery is a personal journey from the concept to the concrete, from inside the mind to outside the body, and from a mere notion to a baby.

The animation was primarily created frame by frame with Metacreation's Painter and a WACOM tablet. It also includes some Photoshop work and some rudimentary motion modeling in Infini-D and Director. Sounds were created with toys and the baby's heartbeat while he was still in utero.

Sound/Music
Zak Margolis, John Oyzon

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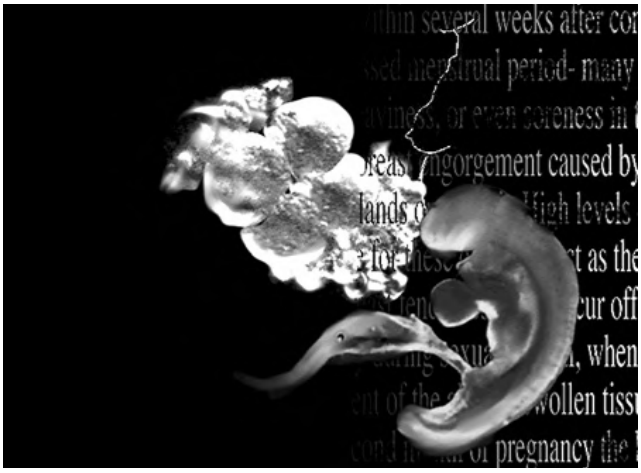
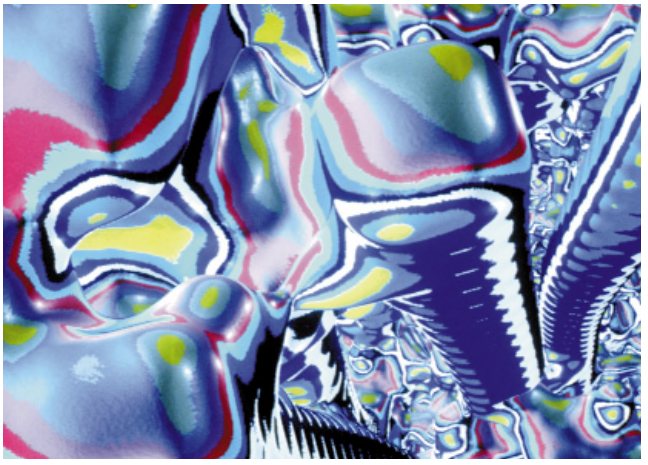


Exotica



Growing out of pioneering research in applying artificial life to "morphogenesis," or the free-form generation of computer-animated 3D worlds, *Exotica* spawns a menagerie of sensuous "life forms" that flow and evolve in a geometry-warping dance. Morphogenesis brings the viewer inside the created environment, providing a way to feel and be surrounded by evolving living things in a way not otherwise possible. The mutating shapes and constant movements demonstrate nature in its ever-changing state.

Director and Animator
Yoichiro Kawaguchi

Producer
Steven Churchill

Music
Tangerine Dream

Software
Proprietary

Hardware
SGI

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Explosion Potion

This graduate thesis animation is a story about a baby witch who envies the skills of the grand witch. She follows the recipe for a flying potion and pours the potion onto the broom, but she keeps falling instead of flying. Finally, she takes off fast and can barely control her flying. Unfortunately, the broom is really so powerful that it explodes like a bomb in the silent night. When she wakes up, she finds she has landed on an airplane, where she is flying and happy again.

Director/Producer
Yin-Fang Liao

Software
Softimage, Alias, Photoshop, Composer, and After Effects

Hardware
SGI O2, Power Macintosh

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Facial Surgery - Today and Tomorrow

A new system for predicting how facial appearance will change after craniofacial surgery is undergoing extensive and careful testing. In this video, the first test patient was accompanied before and after the operation, and the predicted results were compared with real data of the patient's post-operative face.

Director
Yogi Parish

Producer
Markus Gross

Collaborators
Daniel von Bueren, Rolf Koch

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Fiat Lux

Inspired by Galileo's scientific accomplishments and his eventual conflict with the church, this piece employs image-based modeling, rendering, and lighting as well as global illumination and dynamic simulation to dramatize this conflict with abstract forms in real scenes.

High-dynamic-range photography was used to capture the illumination in several locations in Italy, including St. Peter's Basilica. As necessary, geometry was reconstructed through photogrammetry. All lighting was simulated using the actual illumination recorded at each location in order to faithfully model the photometric interaction of the environments and the computer-generated elements with image-based lighting.

Director/Producer
Paul Debevec

Collaborators
Tim Hawkins, Westley Sarokin, Haarm-Pieter Duiker, Tal Garfinkel, Christine Cheng, Jenny Huang, Paul Debevec

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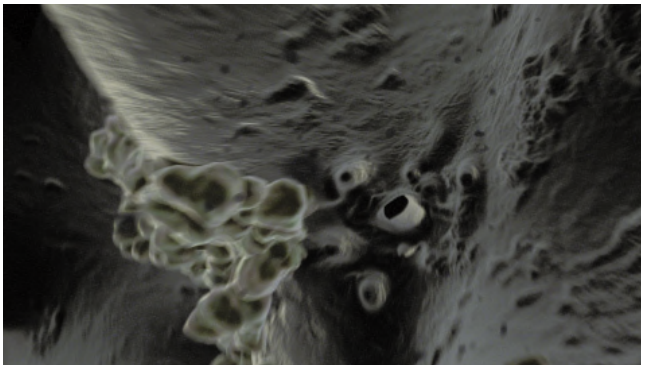

Fight Club

Under the visual effects supervision of Academy Award-winner, Kevin Mack (*What Dreams May Come*), producer Eileen Moran, CG supervisor Mathew Butler, CG artists David Prescott and Judith Crow, and compositing supervisor Carey Villegas, Digital Domain created a virtual "fly-through" of a digital brain for the opening shots of David Fincher's new film, *Fight Club*.

Beginning at a scale of 100 nanometers as the camera pulls out of the synaptic cleft, and ending at full-scale after exiting the cranium, the "virtual camera" traverses a course covering 2,267 frames of 35mm film in one continuous 95-second shot accomplished, in part, using an L-Systems operator in Houdini to grow axons and dendrites found in the human neural system.

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bhoffman@d2.com
www.d2.com

Final Project Assignment

This animation of a self-caricature asks students to create an animation that answers the question: "Why do they want to be animators?" It illustrates a few of the many and varied possibilities inherent in answering this question. The students were encouraged to use any technique or special effect they could create to solve the problem.

Bucky the Floursack and Marcel the Mime (two characters from earlier sample animations) make appearances, with Marcel getting by far the worse treatment of the two.

Director/Producer
Eric Kunzendorf

Software
Lightwave 3D 5.6 OGL, Photoshop 5.0, Illustrator 7.0, Premier 5.0, AfterEffects 3.0, SoundMaker

Hardware
Macintosh, Media 100, Paper and Pencil

Special Thanks
The Atlanta College of Art and 3D Animation II students

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Co-Chair Electronic Art/Computers
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First Union: Launch

In ILM's work for First Union Corporation, both cutting edge and traditional CG techniques were used to depict the turbulent financial world. Surrealistic cityscapes were created using a combination of live-action photography, digital matte backgrounds, and painted buildings on cards. In addition to the photographic tricks, an extensive amount of computer graphics was used to create the 3D city and the thousands of digital extras and automobiles. Multiple layers of digital mattes were used to enhance the depth of many scenes.

Director
Steve Beck

Senior Producer
Paul Hill

Line Producer
Paul Hettler

Post Producer
Kip Larsen

Effects Supervisor
George Murphy

Production Designer
Sean Hargreaves

Set Production Design
Chris Farmer

Post Supervisors
Lori Muttersbach
Diane Caliva

CG Lead
Tim Stevenson

Lead Technical Director
Mary Beth Haggerty

Technical Directors
Melva Young, Branko Grujcic,
Marcus Stokes, Kevin Sprout,
Indira Guerrieri, Michale Easton

Modeling/TD
Leandro Estebecorena

Modeling
Izzy Acar, Neil Lim Sang,
Wayne Kennedy, Emmanuel Shiu

Lead Matchmover
Guy Hudson

Matchmover
Peter Chesloff

Viewpaint Consultant
Eric Shafer

Viewpainters
Richard Moore, Drew Klausner,
Kirk McInroy, Jamy Wheless

Viewpaint/Roto
Josh Lebeau, Ingrid Overgard

Assistant Technical Director
Tripp Brown

Head of CG Commercials
John RA Benson

CGC Project Manager
Kay Rough

CGC Production Manager
Danielle Dubay

CGC Production Coordinator
Eric Shroader

CGC Production Assistant
Erika Engstrom

CG Resource Assistant
Matt Davies

Video Technical Assistants
Ian McCamey
Jim Milton

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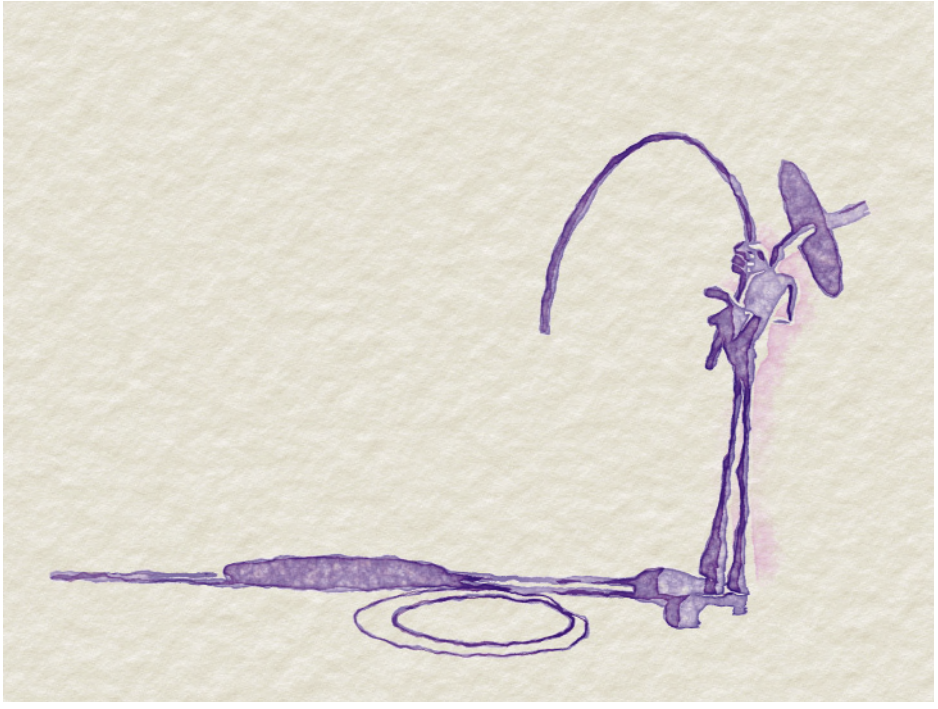
Fishing

An excerpt from the PDI short film by David Gainey.

Fishing is the story of a fisherman whose wildest daydream becomes his worst nightmare. Told in the style of an animated watercolor painting, *Fishing* was produced entirely on PDI's proprietary software, and employs some simple tricks and nonsense to make it all look as loose and hand-drawn as possible.

The 2D, traditional look of the film began with animation of 3D characters in a 3D setting, i.e. the fisherman on the shoreline. The 3D models were then lit and a shadow matte was produced. *Fishing* Technical Director Cassidy Curtis used traditional hand-painted watercolor paintings as reference and added all the watercolor effects using PDI's image processing tool-set.

Also featured in *Fishing* is PDI's proprietary fluid dynamics simulation system. When the story called for a "tsunami of fish", animators applied PDI R&D team-member Nick Foster's 1998 A.M.P.A.S. Sci/Tech winning system (last seen in the flood sequence of ANTZ). Animators adjusted the parameters of the simulation to feel heavier and denser than prior applications – resulting in a murderous deluge of wiggling fish.



Direction, Animation, and Story
David Gainey

Producer
John "JR" Robeck

Watercolor Effects
Cassidy Curtis

Executive Producer
Carl Rosendahl

Contact
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www.pdi.com

The Forgotten Planet

This film, the director's first as an animator, is a short feature about a robot that is rusting from boredom on a nameless planet before being rescued by a space probe.

Director
Marc Urlus

Producer
Michael Alalouf

Collaborators
Rachel Lamisse, Serge Brackman, Christian Leroy

Hardware and Software
Lightwave 3D
Wintel workstations

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marc@avcom.be

The Fort at Mashantucket

The Fort at Mashantucket is a detailed recreation of a 17th-century Native American village and fort based on archaeological data from an ongoing excavation at the Mashantucket Pequot Reservation in Connecticut. Modeled with Alias|Wavefront PowerAnimator, it is one of six interactive installations created by Nicholson NY for the Mashantucket Pequot Museum and Research Center.

The 2.5-minute tour begins with an aerial view of the village and includes 11 stopping points, where the viewer can learn more about discovered artifacts and the archaeology of the site. With a touch of the finger, the camera glides down to ground level and enters the fort. After exploring the village, the visitor leaves the fort and ventures outside and into a 3D-modeled cornfield. The camera then rises up out of the cornfield and soars back up to the aerial view.

The ground geometry was generated using actual topographical data of the site. The vegetation includes plants native to the area at the time, and an 18th-century cornfield was modeled to demonstrate Native American methods of cultivation. The scores of objects found in the fort model are either precise reproductions of artifacts found in the excavation or are based on extensive historical research.

Producer
Raymond Doherty

Art Director
Guido Jiménez

Content Director
Fred Lee

Modelers/Animators
Alberto Forero
Liju Huang
Peter Weishar
Mayumi Sato
Raymond Doherty

Editor
Jonathan Alberts

Composer
Joel Goodman

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Frankenskippy

Frankenskippy is the third animation in a series of three 30-second spots for MTV. The series *Tall Small Stories* aims to immediately capture the attention of the Australian MTV target audience (age 14 to 34). The computer-generated "freak" characters, bizarre landscapes, attention to detail, and uniqely Australian twist keep 'em bug eyed and wanting more.

In Frankenskippy, Frankenstein's monster is born again on the body of a kangaroo road-kill. Frankenskippy hops onto his stage (grave) like a zombie jack-in-the-box. He dances a death dance like a broken-boned mime, performs his self-sacrificial, martyr-magician's tricks, rips his heart out, whips us into submission with his broken tail, and cuts through our ego barriers with his sacred chainsaw.

Producer
Linda Lum

Compositor
Cathy Nelson

Sound Design
Dennis Carnahan

Special thanks to Ian Johnston, Tina Williams and the crew at Conja.

Thanks to James Greville and Jo Bossi (MTV), Dennis Carnahan, Linda Lum, James "Creature" Hughes, Chris "Tweety" Leaver, Cathy "Queenie" Nelson, Andrew Lyons, Dharmanidhi Acarya, Sifu Rick Spain, Ivar Hafskjold, Ma and Pa and family and friends, and last but not least: Frankenstein and Skippy, for putting up with the tricky surgical procedures.

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freedom

The late Emperor is concerned about the young reigning Emperor, and the day has come for him to come back and destroy the castle and free his young successor. This work interprets the director's perception of contemporary Japan: lack of creativity, an inability to establish oneself, and a surplus of predesigned assumptions. Everything and everyone are converted to a flood of information and materialization.

"Behind the scenes, I attempt to express the image of Tokyo, where modern buildings are placed next to historical architecture. To me, it looks like a melting pot that has every cultural aspect of the world, and conveys the feeling that the tiny but lovely island of Japan is continuously polluted."

Director
Minory

Producer
Higashi

Contributors
Tuneo Sakai

Composer
Kakuzo Urao

Sound Effects
Domon
Yanagida/Mc2

Software
Adobe Photoshop 5.0,
New Tek, LightWave
3D5.5, DPS/Digital
Fusion2.0

Hardware
PowerMac,
DeskStation/Raptor
Reflex

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Frisk Spider

A spider takes a pill and the fly cops it! This commercial is the first online use of Glassworks' new fur software, which runs as a plug-in for Softimage.

Director
Harald Zwart

Animation
Alastair Hearsum

Fur Software
Matt Taylor, Lee Houlker,
Robin Carlisle

Flame Operator
Rachel Mills

Producer
Julia Fetterman

Post Production
Sally Mattinson

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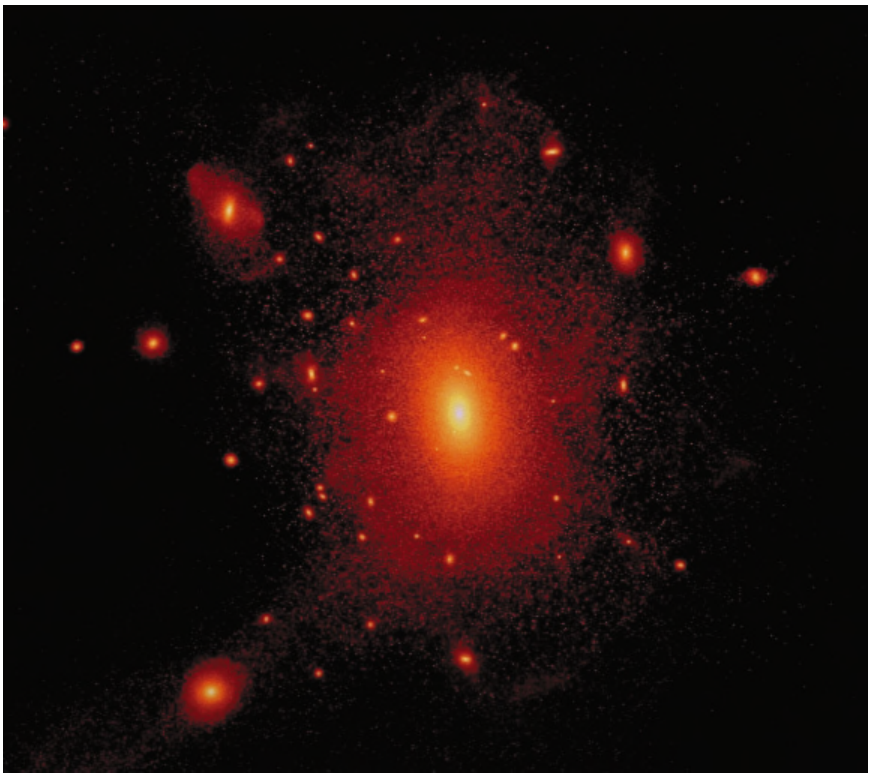
Galaxy Cluster Dynamics

An educational video that includes a series of visualization animations showing interactions and evolutions of galaxy clusters. The first set depicts the collision and merging of two simulated galaxies designed to represent the Milky Way and Andromeda. The simulation follows over three million particles using a self-consistent field algorithm. A second group of animations shows an N-body simulation of the evolution of 100 smaller disk galaxies into a cluster.



Director/Producer
John Dubinski

Numerical Simulation
Joel Welling

Rendering Software Video Support
Anjana Kar, Greg Foss

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Genroku-Ryoran

This work was produced for an NHK TV series, Genroku-Ryoran, which describes a famous Samarai historical drama: Chusingura.

The flowers and 3D CG images are derived from Japanese drawings created in Genroku times. Wireframe images were printed and used to create characters frame by frame, by hand. Then the images were scanned for digital paint and textures

Director
Masayoshi Obata

Producer
Misako Saka

Software
Alias, Animo

Hardware
SGI O2

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obata@bc4.so-net.ne.jp

Georges

Georges calls a late-night radio talk show to tell his sad story. This second short by Joe Grisius was conceived on Studio Max R2 and Photoshop. Frames were generated on a Dual 233 on PC.

Director
Jose Grisius

Producer
Toon Sprl

Contributors
Fernando Tunon, Thierry Lechien, Bouzou, Dario Scire, TimYates, Sinead Walsh, Bill Guischer

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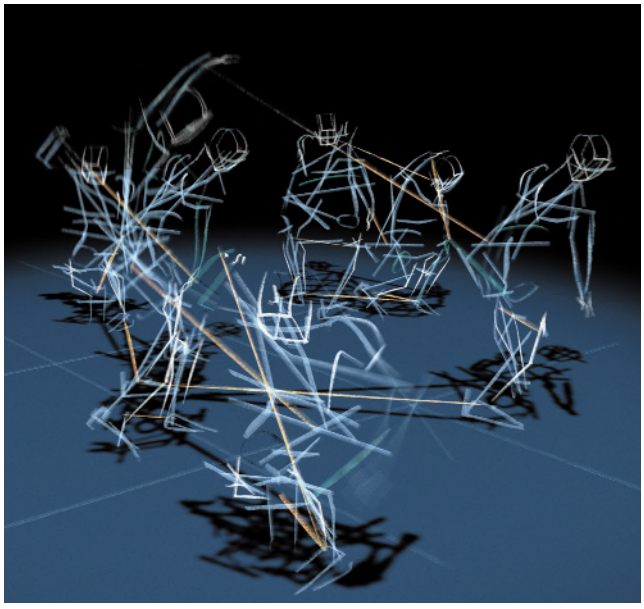
Ghostcatching



In *Ghostcatching*, the disembodied movements of dancer/choreographer Bill T. Jones spawn a series of selves that reflect, entangle, and overtake each other in a search for being. The story begins with an ancestral figure confined to a box and a fixed loop of poses. He spawns a soloist who breaks free but is then entrapped by the hardening trajectories he draws in the air around him. Later, his body multiplies into a single complex network, which propagates phase-shifting motions suggesting infinite possibility. The virtual dance, generated from motion-capture data, was created in Kinetix Character Studio on Compaq NT workstations.

Directors
Bill T. Jones, Paul Kaiser, Shelley Eshkar

Producer
Riverbed

Collaborators
Michael Girard, Susan Amkraut

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Global Tele-Immersion at the Electronic Visualization Laboratory

Tele-immersion is the synthesis of collaborative virtual reality with image processing in the context of significant computation and data mining. This video outlines the work in this field being conducted at the Electronic Visualization Laboratory.

Director/Producer
Jason Leigh

Collaborators
Andrew Johnson, Thomas DeFanti, Maxine Brown, Samroeng Thongrong

Software
CAVERNsoft, LIMBO (a collaborative framework for tele-immersion)

Hardware
CAVE and ImmersaDesks driven by Onyx2s

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www.evl.uic.edu/spiff

Gone Fishin

This piece attempts to answer the question that philosophers have grappled with for years: What if Jaws had been directed by Tex Avery? It was done in Softimage 3D, rendered with Mental Ray on SGI 02s, and composited in Alias|Wavefront Composer.

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Half Pint Heroes

This spoof of Saturday morning cartoons stars Billy Dynamo and Suzy Stardust, two pre-teens who use their galactic powers to help defend their planet, Earth. They must combine their powers and wits to stop a gigantic mutated milk cow bent on destruction of their hometown. Things take a turn for the worst as the heroes are easily bested by the cow. Will they be able to recover and stop the monster's rampage in time? Tune in again to find out.

Half Pint Heroes was modeled and animated using Softimage3D. The characters are all b-spline models, and the buildings are simple polygonal models. The piece was rendered in four passes using Mental Ray and composited with Softimage Eddie to achieve a cel cartoon look.

Director/Producer
Everett Downing

Collaborators
Everett Downing, Aaron Hartline, Daniel O'Brien, Mike Laubach

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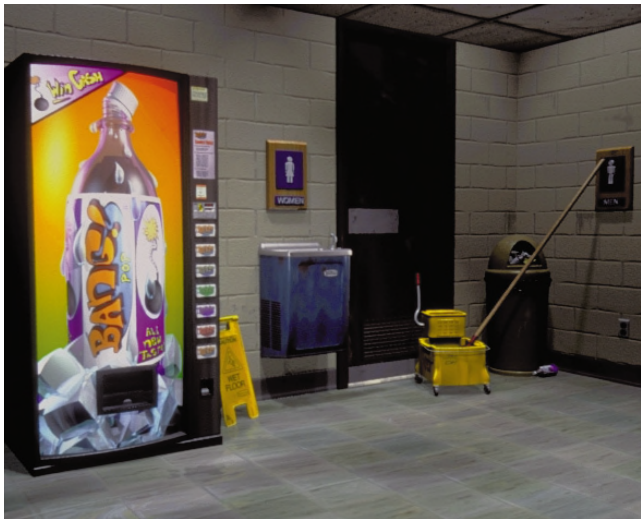
edowning@bigidea.com

Head Quarters

Head Quarters is a love story gone wrong. It centers around a male stick figure who tries to win the heart of his female counterpart. Problems arise when he attempts to get close to her. This was a 10-week student project created at the Rochester Institute of Technology, produced with Alias|Wavefront PowerAnimator V8.5 on an Indigo 2 Impact 10000 SGI workstation.



Director/Producer
Jason Donati

Collaborators
Jason Donati, Chris Cryan

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Hollow

A pumpkin-headed surgeon brings to life a new version of himself and hands over his scalpel to his replacement. The art direction is influenced by Tim Burton, Terry Gilliam, Alex Proyas, Orson Welles, and Alfred Hitchcock, among others.

Alias|Wavefront PowerAnimator v8.5 on an SGI O2 was used to build the models of the characters and props. All geometry was created with NURBS surfaces. Some of the surfaces were created within PowerAnimator, and other specific shaders were created in Adobe Photoshop.

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Hollywood and Highland

The annual Academy Awards ceremony has never had a permanent home, but construction of a new theatre for this purpose is currently underway at the intersection of Hollywood Boulevard and Highland Street in Los Angeles. This animation depicts some of the plans for the exterior and interior of the new theatre, which has very specific design intentions. This project represents IOMEDIA's ability to use blueprints and materials to visualize a design as it evolves throughout the design process.

Director
Damijan Saccio

Producer
Peter Korian

Collaborators
Christopher Batty, Douglas Diaz, Steve Korian, Eric Rosemann, Damijan Saccio, Kent Seki, Scott Sindorf, Peipei Yuan

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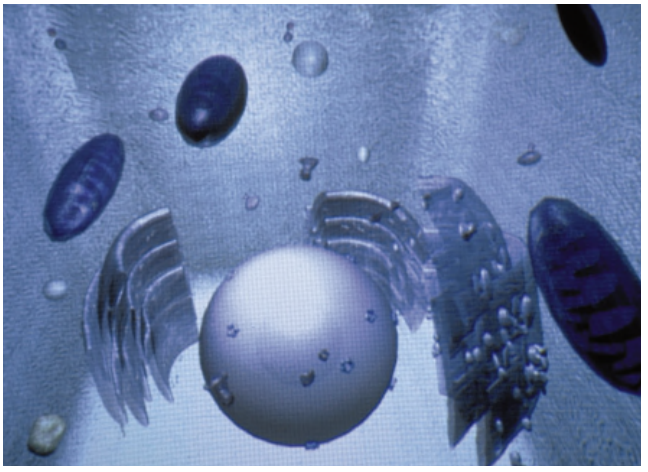
How Reovirus Kills Cancer Cells



This collaboration joins ground-breaking medical research and a talented animation team to visualize a complex biochemical process that has enormous social impact.

In November 1998, researchers at the University of Calgary reported in the journal *Science* that reovirus has been shown to selectively kill a wide variety of human cancer cell lines in mouse models. The reovirus is a naturally occurring virus that is believed to cause mild infections of the upper respiratory and gastroinestinal tract in humans.

Researchers discovered that the benign human reovirus infects and kills cancer cells with an activated Ras pathway. Ras is an important component of a pathway controlling normal growth and differentiation of a cell. When it mutates, Ras may account for 30-40 percent of all human tumors. Researchers believe that targeting this mutation could have broad potential in the treatment of many cancers. The University of Calgary team successfully demonstrated that the virus could kill human cancer cells derived from breast, prostate, pancreatic, and brain tumors.

In the fall of 1999, a phase I/II clinical trial will examine the use of reovirus involving up to 18 patients who have not responded to standard cancer treatment. The main purpose of the clinical trial will be to assess any possible adverse effects or toxicity of reovirus.

Producer
Douglas Bowman

Collaborator
David Rittenhouse, Denis Gadbois

Narrator
Debra Kurtz

Cancer Research Team
Patrick Lee, Matthew Coffey, Peter Forsyth, Peter Strong

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Humpty Dumpty

A TV program becomes a monster, and the viewer becomes a dictator who controls the entire world.

Software
PowerAnimator, Photoshop, Illustrator, Premiere

Hardware
SGI O2, Macintosh

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Hypnos

When the reality of life becomes too hard, dreams can take us to better places, but there are always nightmares.

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Impel

Special thanks to the expert instruction and advice of ACCAD, The Ohio State University.

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The course of events: The environment is a series of chambers that border each other. The central object of the piece resides in the central chamber. Each chamber contains an object or set of objects. One by one, the objects in these rooms perform a pre-defined series of actions. They do this not out of free will, but because it is their nature. The objects must exhibit behaviors that appear instinctive. Their forms must correspond to this need. As each of these objects goes through its routine, it exerts a force upon the primary object in the central chamber.

The construction of the central object is different from the objects in the bordering rooms. Its structure is more static. That is its nature. The top of the central object contains four smaller pieces within an open-faced box. Each one of these objects is vulnerable to one of the forces from one of the four rooms.

Each room has a distinct meaning. As each of the four objects tries to move itself nearer to the room it is associated with, it finds that it cannot escape from the confines of the open-faced box. They want to interact completely with the other forces, but they are confined by the central object of which they are a part. The piece comes to completion after all four of the forces have been described and all have made their mark on the central object. In the end, all four rooms activate simultaneously, which exerts a force upon all four objects in unison. The force of this action is great enough to cause this energy to transfer down the entire central structure, which then begins to pull itself apart in order to interact. In the end, the central object, having gone through a violent transformation, is left as a sprawling mass that is nearly touching the walls of the other chambers.

Inspector Gadget

Inspector Gadget, Walt Disney Pictures' live-action version of the Saturday morning cartoon, follows the escapades of the hapless Inspector Gadget (Matthew Broderick) and his nemesis, the villainous Claw (Rupert Everett).

Dream Quest Images produced the CG deployment of Gadget's many physical extensions: the Gadgetcopter's animated blades and rotors, the Gadgetmobile's animated multi-stage jet engine, Gadget's Swiss Army knife-like finger extensions and his hat-mounted 3D rocket launcher. RoboGadget, the inspector's evil clone, is similarly outfitted with an arsenal of darkly comical chrome weaponry.

This episode focuses on a showdown with RoboGadget on a suspension bridge. Gadget inflates his airbag overcoat and, after bouncing crazily from the cables, shoots to the upper deck of the bridge. This CG character was modeled in Alias|Wavefront PowerAnimator, inverse kinematics were done in Maya, and the shot was rendered in Renderman. Matthew Broderick's face was shot separately against greenscreen and composited onto the character.

Alias|Wavefront Maya Cloth was used to recreate and extend Gadget's clothing as his 14-foot 3D leg extensions ratchet skyward. These shots were created by placing Matthew Broderick on 3-foot painter's stilts and having him run on a treadmill against greenscreen. Digital legs were tracked and animated, and parts of Broderick's body were manipulated on the live-action plate to exaggerate his body language.

Visual Effects Supervisor
Richard Hoover

Visual Effects Producer
Liz Ralston

Animation Supervisor
Chris Bailey

Digital Producer
Kristina Reed

Digital Effects Supervisor
Darin Hollings

Digital Compositing Supervisor
Marlo Pabon

3D Supervisor
John Murrah

Supervising Animator
Rob Dressel

Assistant Compositing Supervisor
Brian Leach

Lighting Supervisor
Mark Siegel

Lead Lighter
Colin Eckart

Lead Modeler
David Mooy

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Iron Bowl

Ten penguins look like pins at the bowling alley and experience exciting adventures.

Director
Daiji Imai

Producer
Tomoyuki Harashima

Software
Maya, PowerAnimator, Photoshop, Illustrator, Premiere

Hardware
SGI O2, Macintosh

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Jabberwocky

This is the director's first serious venture into the field of computer animation. It interprets the famous Lewis Carroll poem, *Jabberwocky*, from *Through The Looking Glass*.

In designing the hero of the piece, a modified version of a knight in shining armor was used to convey the sense of light and trust that is so commonly associated with this chivalrous legacy. The knight stands alone in the piece as the only non-biological form in a mysterious, dark, organic world. Its apparent mechanization represents the current age of man's mechanical endeavor and triumph over his primordial past.

The bone-chilling tone of the narration, and the visuals, evoke a powerful, dark sense of mystery and fear. The underlying soundtrack was created by Jason Wallach (The Unquiet Void) to emphasize the dark, foreboding world in which the story takes place.

Alias|Wavefront's Maya 1.0 and Composer 5.0 were used to animate the visuals on SGI workstations. Textures were manipulated in Adobe Photoshop 4.0 on Windows NT Workstations.

Director
Caleb Strauss

Producer
Florida Center For Electronic Communication

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The Jester

This is your first encounter with your hostess of the synthetic world. She appears as a sexy jester, a symbol of joviality and fantasy. She reminds you that the virtual world caters to your spiritual and physical well-being. It is now your chance to decide which world you would like to enter...

The Jester was created using Pacific Title / Mirage's proprietary LifeF/X system. Based on a finite element description of the face, LifeF/X captures, recreates, and manipulates subtle facial movement from a live performance. Maya was used to add and animate the hat, and Renderman to output the final images.

Co-Directors of LifeF/X Development
Paul Charette, Mark Sagar

CG Artists
Dave Altenau, Cory Bedwell, Rudy Grossman, Rachel Kelley, Justine Sagar, Olivier Sarda, Kevin Smith, Brian Steiner, Andrew Tucker, Chris Waegner

Digital Tracking
David Geiger, Brad Kalinoski, David Kalinoski, James Shephard, Tinatsu Wallace, Kieran Waegner

LifeF/X Software Development
Shane Blackett, David Bullivant, Richard Christie, Peter Hunter, Poul Neilsen, Stuart Norris

Editor
Greg DeCamp

Music
Marc Crandall

The Jester
Jessica Vallot

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Jitterbug

Over the last three years, Digital Domain has created CG characters who exhibit great movement through dance and athletics. The skeleton "character" in Michael Jackson's "Ghosts" and the virtual Andre Agassi for NIKE are examples. For director Bruce Dowad and Edge Creative, Digital Domain continued to build on its unique understanding of dance in the digital realm with *Jitterbug* for Coca Cola. Beginning with performance capture sessions, under the supervision of Andre Bustanoby and animation supervisor Daniel Loeb, Digital Domain created a stylized spot reminiscent of the Harlem Renaissance school of painting. The CG characters were then animated in Softimage using the "roto-capture" process developed for Digital Domain's Academy Award-winning work on *Titanic*. CG cloth simulation was featured throughout the spot, and was ground-breaking in both its extensive use and accurate simulation of various types and weights of material.

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Director
Bruce Dowad

Producer
Edge Creative

VFX Supervisor
Andy MacDonald

Animation Supervisor
Daniel Loeb

Performance Capture Supervisor
Andre Bustanoby

Lead Animator
Bernd Angerer

Lead Technical Director
Vernon Wilbert

Digital Artists:
Jon Aghassian, Mike Amron, Mark Brown, Spencer Cook, Leiff Einarsson, Robin Finn, Kseniya Hoppe, Keith Huggins, Kevin Jackson, Giancarlo Lari, Patrick Lowery, Howie Musika, Melanie Okamura, Brad Parker, Chris Roda, Randall Rosa, Atsuko Shindo, Toshi Shiozawa, Keith Smith, Gaku Tada, Keiji Yamaguchi

Compositors
Jean-Luc Azzis, Rick Dunn, Peter Jopling, Scott Rader, Donovan Scott, Perri Wainwright

Software Support
Tom Dilligan

Texture Painter
Martha Mack, Lillian Jacobs, Renee Rabache, Tony Halawa, Tonia Young

Producers
Patrick Davenport, Julian Levi

Production Coordinators
Kelly L'Estrange, Allyse Manoff
Production Assistant
Bob Oschack

Motion Capture
Tom Tolles/House of Moves
Jarrod Phillips/House of Moves

K Museum

K Museum showcases the architectural atmosphere achievable through radiosity rendering. Titled to evoke the Japanese term ka-ku-u or "virtual," the animation treats the viewer to a sweeping tour of the entrance to a simulated museum. The vestibule is a striking amalgamation of both material and space, highlighting the visual contrasts attained through blending indoor with outdoor space, immediate with remote vistas, horizontal with vertical conditions, and shiny with matte surfaces. The rendering captures the subtle shadows and color bleeding that result from atmospheric conditions, such as the pool's soft reflection of the distant trees and the diffuse lighting on the stairs reflected from a neighboring wall. These ephemeral details embody the essence of atmosphere and afford a true architectural experience.

Director/Producer
Shinsuke Baba

Collaborators
Jennifer Meloon, Stephen Duck

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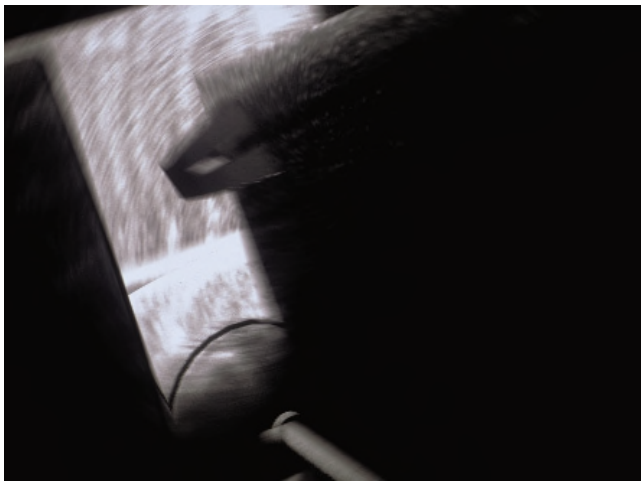
Karen and Jennifer



Loosely based on the true story of a child who is attacked by an adult, *Karen and Jennifer* inteprets the principle of action–reaction. The basic technical concept was to create a character animation piece without literally showing the characters and focusing instead on their actions and the effects of those actions. This animation was produced on Silicon Graphics 02 workstations using Alias|Wavefront PowerAnimator 8.5 and Composer 5.0.

Director
Stephen Shearer

Producer
Ringling School of Art and Design

Voice
Nicole Berger

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Kitan

In this world based on Japanese traditional culture, the story is about a Buddhist whose pursuit of spiritual awakening is relieved by Sahasra-Bhuja (the Goddess of Mercy with 1,000 hands). The visual style is reminiscent of Indian-ink drawings in a chiaroscuro world.

Director
Kengou Miyakuni

Producers
Tomohiro Kadokawa
Hidenori Onishi

Software
Softimage3D 3.7, Adobe Photoshop 5.0, Adobe Illustrator 7.0, and Adobe AfterEffects 3.1

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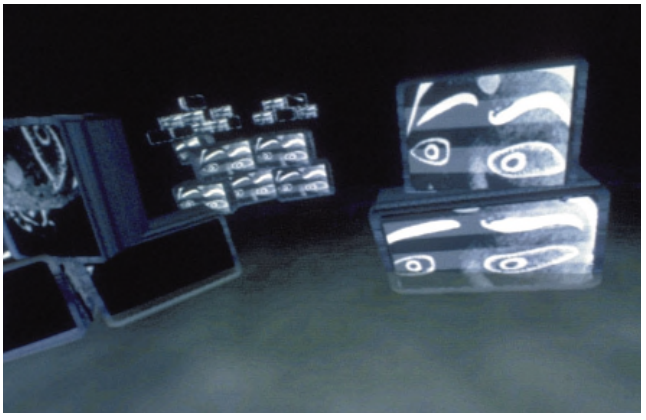
Koktoo Gaksi



This work is a digital translation of the only remaining Korean traditional marionette performance: "Koktoo Gaksi," an interactive play filled with emotion and spirit.

The unique form of the play is based on traditional Korean philosophy. The line between the audience and the actors is meaningless, and the audience can become the actors at a certain point. In the end, everyone on and off the stage becomes part of the play.

This approach to drama can seem rather confusing, but as the play progresses, freedom and order appear, and everything harmonizes. This is expressed through the many monitors on the digital stage, which scatter in every direction, showing splendid visual images that stand for ultimate power within the presence of balance and imbalance.

Software
Photoshop, Soundeditor, Protools, Softimage, Flame

Hardware
Power Mac 8500, Indigo, Onyx, Digital Betacam recorder, Cannon AE-1 camera

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KulaQuest

The word "kula" means "ball." You are Kula, jumping into the inner world of a simple cube, which is one of the elements of *KulaQuest*, a PlayStation game. Flying at full speed through a space consisting of similar cubes in a gravity-free state, you eventually arrive in a world where no one is playing, yet a game is being played.

Directors
Hiromasa Horie, Gaku Tada

Producer
Shuji Hiramatsu

Digital Editing
Yasuharu Yoshizawa

Particle Design
Hidehisa Onai

Digital Paint
Sayaka Nagano, Naomi Horikawa

Music and Sound Effects
Masamichi Seki, Kouichi Yamazaki

Tools
Alias PowerAnimator, Flame, Photoshop

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Lara Needs Seat

An ordinary day for Lara Croft. She manages to escape from everyday dangers (including dinosaurs!) thanks to Seat cars. The film begins early in the morning and finishes by mid-afternoon.

Director
Pascal Vuong

Producer
Ex Machina, Lionel Fages

Client
Seat

Agency
Callegari-Berville

Artistic Director
Philippe Rouby

Writer
Bernard Serf

Consultant for Lara Croft
Eidos

Production
Ex Machina

Sound Track
Bell X1

3D Artistic Director
Majid Loukil

Software
Softimage, Photoshop, Modeling with Explore

Hardware
SGI

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Le Bestiaire

In the subway, all the social classes meet. But who will have the best place?

Director
Julien Delmotte

Producer
SUPINFOCOM

Music
Moon in June

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Le Ciel Est a Tout Le Monde

The inventor's dream: A flying drawn object comes to life. He gets out of the book where he was created, and while he's flying over the book, other drawn machines start to move.

Director
Anne Bourdais

Producer
Aii Ensad
Atelier d'Images et d'Informatique de l'Ensad

Music
Frédéric Grably

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The Legend of Dragoon

A legend of a majestic tree. That's the origin of all lives. This sequence, art of the PlayStation video game *The Legend of Dragoon*, shows how it germinated and grew once upon a time on some planet. Someone sealed its magical power and hid it, so nobody knows where it is or what it is today. But it's a key for the future of all.

Height of the tree: 2,500 meters. Growing speed: the speed of sound or faster. This could be possible only in computers. The vines automatically grow according to simple rules. The large tree was nurtured by giving it artistic parameters instead of water.

Director
Kenichi Iwata

Producer
Shuji Hiramatsu

CG Artists
Takahiro Fuji, Hideki Mizoguchi, Yoshiro Watanuki

Digital Editor
Yasuharu Yoshizawa

Digital Painting Artist
Kouji Miyata

Assistant
Momoko Ikeda

Sound Effect Artist
Takashi Kanai

Tools
Modeling/Animation: Houdini
Rendering: RenderMan
Editing/Compositing: Flame
Painting: Photoshop

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Les Pecheurs de Perles

This is a story of a man's life.
Now he is lying on a dreaming machine.
When he drops into his dream,
he will see his own history.
He was born, then he grew step by step.
And he was awakened to ego.
But then he lost his purpose to live.
His mind was broken.
Now what will he see?

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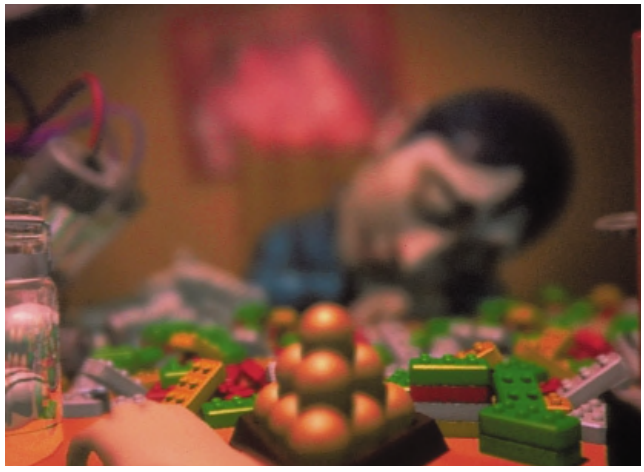

LIDAR: Reality Capture

In many applications, from movie sets to architecture, long-range laser scanning technology has emerged as a system for capturing complex structures and surfaces. LIDAR scanning measures 100 meters away with six millimeters of accuracy by measuring the time it takes for a pulsed laser beam to hit a surface and make its return. The scanner records the point into a 3D visualization program. This animation highlights the broad range of applications for LIDAR scanning and Cyra's research and development in this new industry.

Directors/Producers
Eric Wong and Dennis Martin

Supervisor
Daniel Chudak

Post Production Coordinator
Alan Lasky

Sound
Grant McKinney, Lisa Simon-Parker

Collaborators
Benedikt Wolff, Guy Cutting, Wilvia Uchida

Senior Staff
Ben Kacyra, Barbara Kacyra

Software
Cyra CGP

Hardware
Cyrax 2400 Laser Scanner

Software Developer
Jonathan Kung

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Longing

Morning

Naked, you are simple as a hand; minimal, supple, earthy, transparent, round.

The Cuban blue of midnight is your color; Naked, I trace stars and tendrils in your skin...

Pablo Nervola,
from "Five Decades: A Selection (Poems: 1925 - 1970)"

The text of the poem lingers and roams over the model's body. She was created using Maya, Composer, and Photoshop.

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Lords of Sipán

Lords of Sipán is an animated short film based on the stories narrated by drawings in clay vessels of the Mochica culture that inhabited the Moche valley in northern Peru between the first and eighth centuries.

The story begins with an underground journey through the Moche paradise, where the skeletons enjoy their deserved eternity after so many sacrifices for their gods. It moves on to the valley, traveling through the majestic Huacas (pre-Columbian pyramids). Inside one of them, a great number of exhausted prisoners are violently sacrificed to obtain their blood (sacred liquid) that the moon priestess will carry in a golden chalice through the extensive corridors of the huaca to the throne where she will make offerings to the God of Darkness, who waits impatiently. Strong energy emerges from the depth of the chalice and brings to life Strombus (Moche dragon), a mythical and powerful creature that is liberated to establish the domain of darkness over the light in all the neighboring valleys.

Director
Erwin Gómez Viñales

Producers
Hugo Chinga
Margarita Cid

Software
Softimage 3.8, 3DStudio Max 2.5, Lightwave 5.6, Photoshop 4.01, AfterEffects 3.1, Protools

Hardware
Five Pentium II network equipped workstations, Digisuite-based workstation

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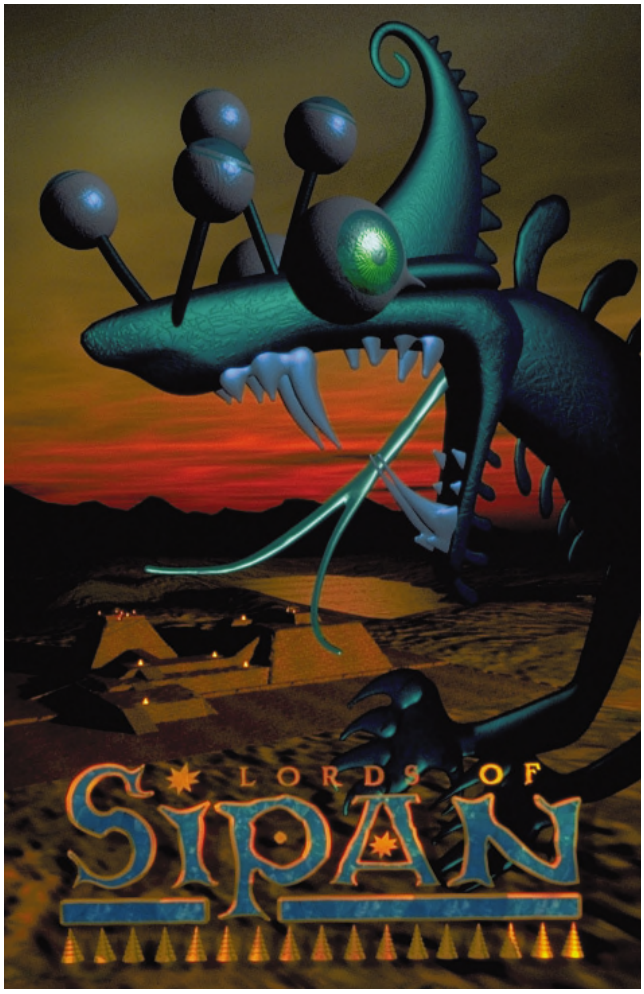
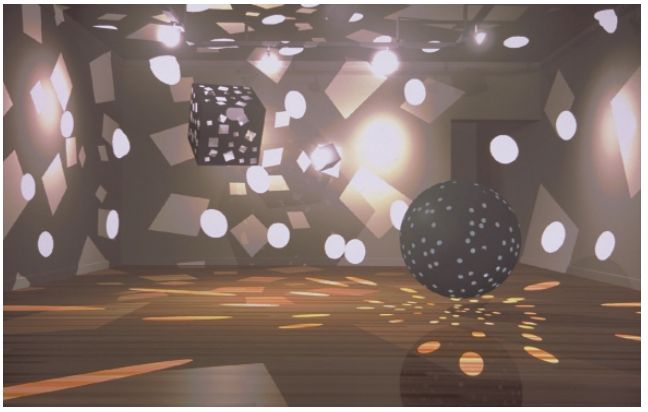


Luminaries



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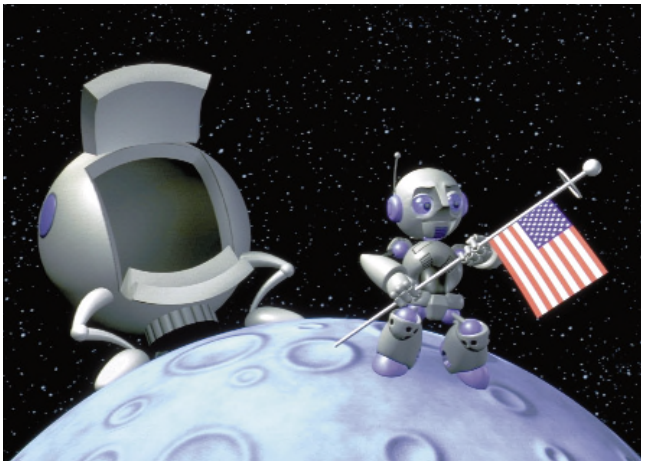
Luminaries is related to a series of films produced in the late 60s, 70s, and early 80s that focused on an artist's viewpoint rather than a filmmaker's narrative approach. It applies the same approach to the medium of computer animation.

As in the films, the story is not a narrative about life events. It is the revealing of space and the nature of the medium that creates the space. *Luminaries* gradually reveals the space through light. In this case, light emanating from animated objects is the source for the revealing of the space. The animated objects act as the characters, and the characters act as the describers of space.

The earlier films utilized spatial ambiguities to describe space. The computer-generated environment allows for another set of ambiguous spatial situations. Gravity and the absence of gravity are used in *Luminaries* to illustrate the unreal nature of the spaces seen in the piece. Intersecting objects act as another tool to emphasize the synthetic nature of the events taking place.

The animation was produced with Alias|Wavefront Maya 1.0 and Alias|Wavefront Composer 5.0. Keyframe animation and dynamics were use to produce the animation sequences. A single SGI Indy computer was used for modeling, animation, rendering, and post production

Luna



Luna is a satirical commentary on the nature of men, women, and the relationships between them. On a fictional moon, a lonely alien girl sits staring into space. When a robotic man lands his space pod on the moon, the two have a difficult time finding each other, but when they do, it's love at first sight.

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Collaborator
Woody Smith

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The Magician and the Rabbit

Where would a magic show be without a rabbit? This is the story of how a rabbit of humble origins made it to the magician's profession.

Despite its traditional media appearance, the animation was created entirely using a new vector-based animation system: LivingCels. All the keyframes were digitally drawn within LivingCels, which also generates in-betweens automatically. No ink-and-paint or scanning was involved in the animation process.

The system uses an efficient vector-paint technology (an extension to the skeletal-strokes technique) for creation of key drawings and rendering of the generated frames. Together with other features of the system (automatic object correspondence, hierarchical animation, and picture-based models), stylish cel animations that are resolution- and frame-rate-independent can be created efficiently. Smoothly interpolated action with motion blurring is easily achievable from hand-drawn keyframes.

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Original Music Composition and Performance
Irene Lee

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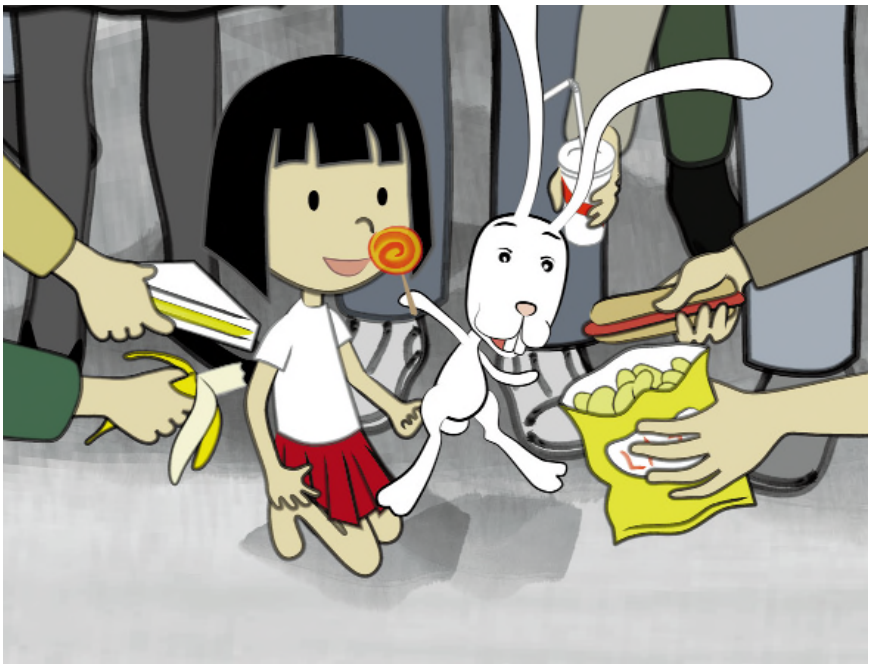

Mighty Joe Young

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Hoyt Yeatman

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Dan DeLeeuw

Animation Supervisor
Chris Bailey

Supervising Character Animator
Rob Dressel

Digital Compositing Supervisor
Blaine Kennison

Digital Producer
Kristina Reed

Lead Compositors
Saki Mitchell, David Lauer, Amy Pfaffinger

CG Hair Texturing and Grooming
Colin Eckart

Facial Animation System
Patrick Taylor

Modelers
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Hair Rendering Software Developer
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To realize the performance of Mighty Joe Young, Dream Quest Images created a photorealistic CG gorilla that captured not only the likeness of the animatronic gorilla, but also the nuances of a suited actor's performance.

Creation of CG Joe presented many challenges for Dream Quest's digital team: modeling and character animation, controls for the internal skeleton, a proprietary facial animation system, a proprietary skin shader technology, and, most importantly, proprietary software to generate several million individual dynamic hairs. Joe was first modeled from scan data of maquettes, as well as full body scans of the actor in the gorilla suit. Geometry built from this data was remodeled using Alias|Wavefront Maya's Artisan sculpting software.

Dream Quest's software programmers spent a year writing and refining a proprietary hair render program (Yeti) with extensive functionality and tool sets that enabled digital artists to control hair dynamics and inertia, motion blur, self-shadowing, and grooming for nearly 3.5 million hairs.

Character animation for CG Joe was also accomplished in Maya, where the animators interpreted the live Joe and reflected the actor's performance. But the main reason for creating a digital Joe was to extend performance of the suited character and take the CG character a step beyond so he could do things that were impossible for the actor to do, like climbing a Ferris wheel or smashing a Mercedes.

Mighty Joe Young was nominated for a 1999 Academy Award for Best Visual Effects.

Mighty Joe Young - Research and Development Highlights

ILM's digital fur technology was initially developed for the movie *Jumanji* and has been significantly improved since then. It recently reached new levels of realism with the computer generated gorilla in *Mighty Joe Young*. The various steps involved in creation of Joe are illustrated with actual snapshots of CG applications entirely developed by the Research and Development Department at ILM, from modeling, skinning, and texturing to fur controls and rendering.

The entire piece was edited in Loupe and is best displayed at 24 fps from the live high-resolution video output of a Silicon Graphics O2 workstation.

Concept and Editing
Christian Rouet

Modeling Sequence
Nicolas Popravka

Skinning and Cycle Sequences
Vishwa Ranjan

Horse Removal Sequence
Rod Bogart, Steve Sullivan

3D Painting Sequence
Eric Schafer

Fur Rendering Sequence
Florian Kainz, Carl Frederick

Hair Animation Sequence
John Anderson

Real-Time Layout and Formatting
Vincent Toscano

A very special thank you to all the digital artists and the entire ILM Visual Effects Production Team for their work on *Mighty Joe Young*, and for their great help and support:
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Moebius: The City of Fire

Inspired by the comic writer Moebius, this animation's objective is to simulate the style, mood, and tone of his work. *City of Fire* will be developed into a TV series.

Menfond Electronic Art

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Victor Wong

Producer
Thalia Tau

Software
Softimage, Mental Ray

Hardware
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MTV-Forests

Topic: forest protection. A mad guy is cutting trees. When the whole forest is turned into an empty field, the woodcutter is covered with leaves and wood particles. In his madness, will he recognize that he is not a tree?

The main character in this short film is a combination of motion capture, keyframe, and traditional cell animation techniques, in which sequences of hand-drawn images are mapped into the 3D world.

All 3D animation was done with Softimage 3D. Actor motion was captured with Ascension Motion Star. Cell animations were done in the traditional way, then scanned and colored in Discreet Logic Flame. All textures were hand painted with acrylic paint, then scanned and postprocessed on Photoshop. Everything was rendered with Mental Ray. Compositing was done in Flame.

Most of the work was done on SGI and Intergraph workstations.

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The Mummy

ILM's computer graphics were essential in depicting the Mummy's rotting corpse and his transformation to human. Extreme painted displacements added sculptural detail to a complex CG model. A proprietary simulation method was used to deform skin over muscles and bones to enhance the realism of the character's motions. Match-animated prosthetics provided "virtual makeup," allowing the artists to remove parts of the actor. In addition, particle systems, herd simulations, cloth simulations, and motion capture were all used to create the Mummy's manifestations as sandstorms, plagues, and hordes of rotting Mummy warriors.

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Animation Supervisor
Daniel Jeanette

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Dennis Turner

Digital Model Supervisor
James Doherty

Digital Color Timing Supervisor
Kenneth Smith

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Associate Visual Effects Producer
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Jenn Emberly

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Creature Sculptors
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Digital Modelers
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Viewpaint Artists
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Location Matchmove Artist
Marla Selhorn

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Digital Paint and Roto Artists
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Joshua Pines

Film Scanning Operators
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Andrea Bilkian

Negative Line-up
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Projectionist
Tim Greenwood

Digital Plate Restoration
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Information Systems
Lam Van To

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Thebes and Hamunaptra Collapse Sequences

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Visual Effects Director of Photography
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Carl Miller

Pyro Technician
Geoff Heron

Gaffer
Michael Olague

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Murmures

A deserted city is visited by a character from the sky. The past suddenly sounds...

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Producer
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Music Lessons

A bagpipe is a newcomer in a school music room. Four instruments (a trumpet, a clarinet, a tuba, and a French horn) attempt to show him who's boss. Determined to show his ability, the bagpipe retorts with his own strange and beautiful music.

The characters and environments were modeled in Maya v. 1.5. All of the characters employed bones and expressions to dictate their movements and give them life.

Director
Wilson Smith

Producer
Ringling School of Art and Design

Collaborators
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My Favorite Martian

This intergalactic comedy based on the classic television series follows the hilarious adventures of a Martian whose spaceship has crash landed on Earth. Tippett Studio used computer graphic technologies to model, animate, light, and composite the spacesuit (Zoot) and the Lizzie Monster. It was a special challenge for the Tippett Studio crew to give Zoot, a headless, handless, feetless character entirely made out of fabric, a distinctive personality. Several techniques were combined to successfully give Zoot his many playful, graceful, and mischievous character traits.

Character Animation
Tippett Studio

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Visual Effects Supervisor
Craig Hayes

Visual Effects Producer
Jules Roman

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Trey Stokes, Thomas Schelesney

Compositing Supervisor
Brennan Doyle

CG Supervisor
Greg Butler

Digital Lighting Supervisor
Greg Butler

Animation Department Head
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Lead Digital Painter
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Digital Lighting Department Head
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Senior Digital Lighting
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Digital Lighting
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Digital Effects Animator
Al Arthur

Digital Composers
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Suzanne Lowe

Visual Effects Coordinators
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Assistant Coordinator
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Operations Manager
Jeff Stringer

Production Accountant
Suzanne Niki Yoshii

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Joanne Ladolcetta

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Software Developers
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Digital Scanner Operator
Stephen Stanton

Color Correction
Page Frakes, Haunt Rama

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Darren Jones

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Vicki Wong

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My Little Alien

An Explorer lands on an alien planet and discovers an egg-like spaceship. A little baby alien wakes up from his hibernation and mistakes the Explorer for his parent. The Explorer backs off, but the little alien is desperate for love and affection and won't give up so easily. When the Explorer orders him to leave, the little alien returns to his spaceship with tears in his eyes. But the Explorer feels guilty and decides to befriend him, so the little alien sends a signal to his spaceship. Suddenly, the mother ship erupts through the ground! Hundreds of little aliens cheer as they meet their new "parent."

Written, Directed, Animated and Produced by Kelvin Lee

Music
Nathan Wang

Technical Supervisor
Manny Wong

Technical Assistants
Chris Juen, Anthony Serenil, Gerardo De La Cruz

Video Editors
Ron Vargas, Ray Wong

Film Recorders
Dennis Webb, Derrick Quarles

Special Thanks
Max Lee, John Matthews, Harry Walton, Eric Armstrong, Henry Anderson, Barry Weiss, Don Levy, Sande Scoredos, Tim Douglas, Dominick Cecere, David Vallone, Todd Wilderman, David Schaub, Delio Tramontozzi, Emmanuel Mogenet, Rich Cole, Frank Foster, Cathy Naugle, and Sony Pictures Imageworks

Software
Alias|Wavefront Power Animator 8.1.

Hardware
Indigo2 Extreme, 200 MHZ IP Processor

Dedicated to Max Lee, who inspired the story

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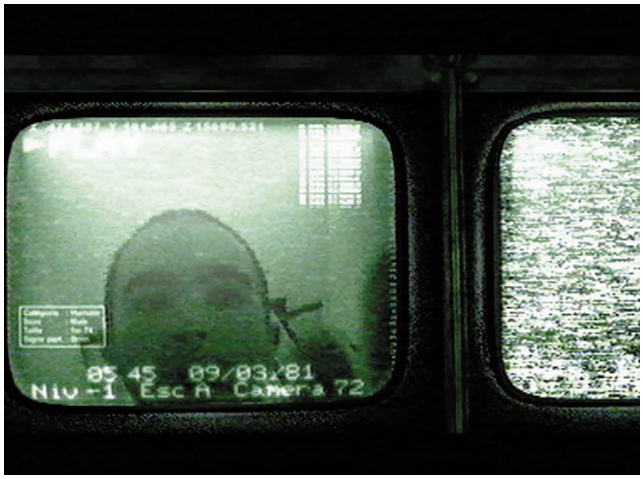
Nada Mas

In his supervision room, a watchman spends his time spying and "capturing" all the events he observes.



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Producer
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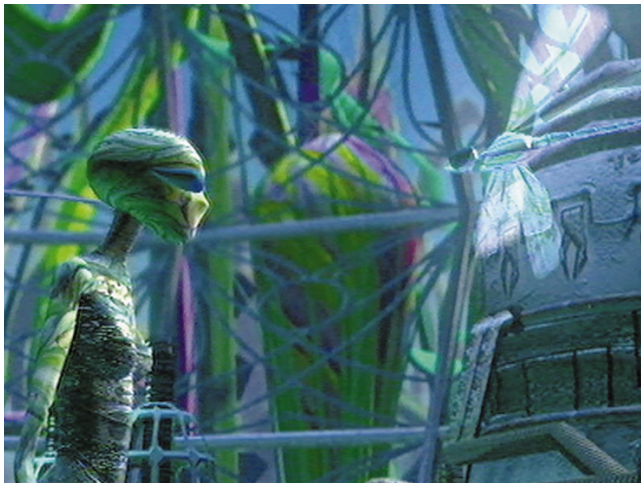
Nilaya

In a prison cocoon, a working girl frees herself from her chains and discovers a luxuriant world.



Director
Sandrine Mabilat

Producer
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Music
J.P. Mouton

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Oddworld: Abe's Exodus

The hard-working Glukkon entrepreneurs at SoulStorm Brewery have distilled the ultimate beverage: tasty, refreshing and 100-percent addictive. Better yet, the main ingredient of finely aged Mudokon bones is freely available in the ancient Mudokon burial grounds. Enter Abe, ex-slave and unlikely savior of the Mudokons. As Abe tries to stop the Glukkons from emptying the Mudokon graveyards, the SoulStorm Brew marketing campaign swings into high gear. All of Abe's friends soon become addicted to the fresh, clean taste of SoulStorm Brew and to get more, must become lifetime employees of SoulStorm Brewery, where the only benefit is early retirement. Friendless and alone, Abe has to save the Mudokons from SoulStorm Brewery – and themselves – before it's too late. All this and funny subtitles too!

3D models, animation, and rendering were created using Alias|Wavefront PowerAnimator. The piece was composited with Shake, and Buf tools were used for their realtime flipbook and display tools.

Creator/Director
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Executive Producer
Sherry McKenna

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One Tooth Too Far

Phillip Merit is a private toothfairy, and a damn good one at that. But if he is so good, why is his partner lying toes up in the morgue? And what does the mysterious package mean? It all has to do with fairyland greed. The details lead Phil into a corrupt web of violence and deceit involving the whole darkly grim tooth trade. He uncovers a plot so insidious that even he can't see how huge it is ... until it's too late! *One Tooth Too Far* is an experiment with sexual roles and the male archetype.

Directors
Michael Sanborn, Brian Burks, Ken Trunk

Producer
Ringling School Of Art and Design

Music
Steve Snyder, ProMusic

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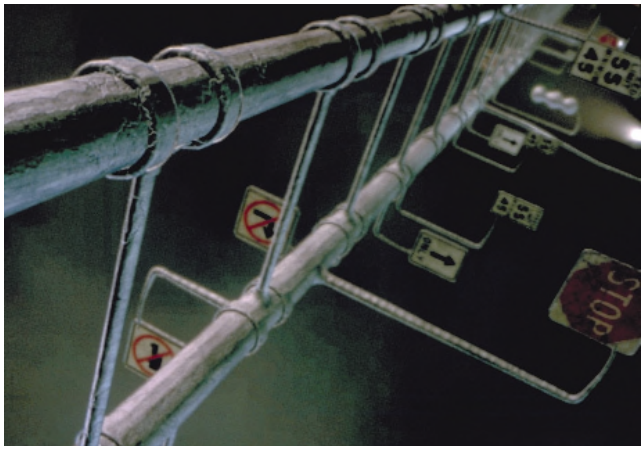
Only

Human beings have an inherent self-actualizing drive. *Only* represents the ceaseless process of facing difficulties and overcoming them. The endless ladder and traffic signs are metaphors for difficulties changing environments,and the restrictive systems that govern human life, and the heavy body conveys the amount of energy it takes to overcome life's challenges.



Director/Producer
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Music
Charles Noel

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Orkin: Spy Guy

In this 30-second digital film, an innocent group of kitchen items is about to be violated by a ransacking army of ants. The rosy-cheeked and romantically linked Salt and Pepper shakers quiver in open-mouthed terror while the cute Cow Creamer moos in agony at the arthropod invasion. The Sugar Bowl leaps about hysterically in an attempt to avoid being devoured. The vintage Kitty Kat Klock swings her tail nervously and yowls in protest. And, in a starring role, the Honey Bear (played by the inimitable Dom Deluise) yells a futile cry for help. Such a sweet guy and so helpless...

But wait! All is not lost! The suave and sophisticated Orkin Man swaggers onto the formica counter top from behind the door of his high-tech bread box and stands next to his streamlined vehicle, here to save the day! In a tuxedo! With an acrobatic yet elegant martial-arts-derived tumble, our hero moves swiftly into a strategic location to take advantage of the latest in modern kitchen technology and rid this innocent world of the evil pincher-snapping pests.

This state-of-the-art, character-driven spot and cinematic experience was animated and rendered by the R/GA Character Group using Softimage and Mental Ray as core technologies. *Spy Guy* is the fourth spot that R/GA has produced and directed for this original campaign, so custom tools and expressions have been developed within Softimage to provide for maximally efficient and artist-friendly animation of the Orkin Man, due to his recurring role and increasingly difficult-to-work-with behavior.

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The Palace of Soviets

In 1931, a major international competition was held for the design of the Palace of Soviets in Moscow. The entry by the French architect, Le Corbusier, gained the greatest recognition, but was not selected due to the highly political nature of the jury process. The space Le Corbusier envisioned has been sealed in a small model, which is now in the permanent collection at the Museum of Modern Art in New York. This film is an attempt to visualize the full-scale experience of this magnificent architecture interpreted from Corbusier's blue prints.

Director
Shinsuke Baba

Producer
Takehiko Nagakua

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Pandas

For Coca Cola's international campaign, Digital Domain's character animation group created a family of CG Panda bears. Directed by Ray Giarratana, with Daniel Robichaud serving as animation director, the spot features remarkably photo-real and lifelike fur created with a Mental Ray fur shader. The CG habitat was composed of bamboo trees, grasses, and a spring created in Softimage.

Coke Panda Crew

Agency
Edge Creative

Agency Producer
Fiona Forsyth

Crew

Director/VFX Supervisor
Ray Giarratana

Producer
Eileen Moran

CG Supervisor
Daniel Robichaud

Coordinator
Kieran Woo

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Party from Final Fantasy VIII

In this early FMV sequence from a PlayStation-compatible game, the hero and heroine meet at a dance party. The scene conveys the rising emotion between the two through their facial expressions and faithfully renders the natural movement of the dancers and their hair.

Directors
Motonori Sakakibara, Yoshinori Kitase

Producer
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Final Fantasy VIII CG Team

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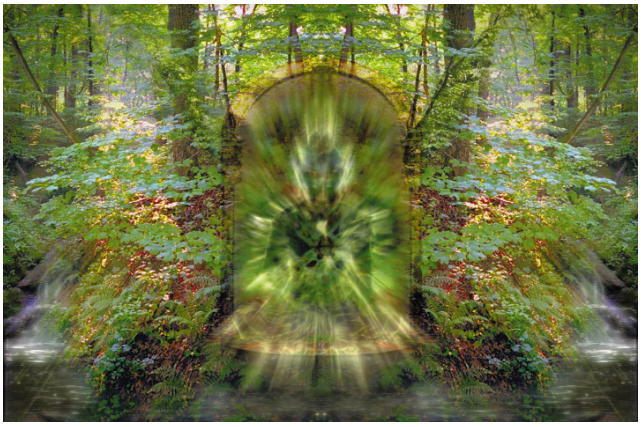
Passages

The vision of *Passages* is fulfilled through the looping nature of the journey: a cycle of emerging and shifting locations and energies. On this journey we pass through different states of energy and experience a series of peak moments that are visualized by imbuing woodland scenes with perpetual and organic changes. The way each scene develops and progresses is guided by the potential transformative qualities of the natural phenomenon inherent in that scene. These interpretations of nature's consciousness emerging and shifting in character were inspired by experiences of landscape as sensed internally and spiritually.

The source scenes were constructed from multiple photographs and video footage. Moving luminance mattes of fluid and natural processes of wind, water, fire, and light were created by a combination of computer particle effects and natural footage. These mattes govern the changes between scenes by individually emerging through the multiple layers of the sources. In this way, each moment contains aspects of the past and future elements.

The flow of the story is based on the rythmn of human breath. The narrative unfolds in a familiar, transparent pattern, using rhythm as a mediator between various natural states.



Music
Fritz Heede

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Piccolo's Encore

Director, Producer, and Animator
Sam Chen

Software
Alias|Wavefront Maya v1.5

Hardware
SGI O2 & MaxImpact Workstations

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Piccolo's Encore is an improvisational short film about a precocious little character named Piccolo, who belongs to the cybergourdus genus of the hybrid animal-plant kingdom. He can produce distinctive musical voices by striking himself in various places, and this is how he communicates thoughts and emotions to other cybergourds.

When he gets hooked on a fantasy (becoming a big-time entertainer), Piccolo awakes to the intoxicating rhythms of a Latin acid-jazz groove. As he gyrates into a trance, he finds himself in a compromising position and must find a creative way to escape.

This animation began humbly, as a character study and motion-test for a longer story involving several characters, but it quickly became a tale of its own. The "straight-ahead" animation approach encouraged a more spontaneous and serendipitous performance from the character. The result was improvisation inspired by the soundtrack.

Planet Paranoid

Cape Canaveral, 1977: Voyager II begins its trip to the stars. A golden image-record was mounted on board the spacecraft, to communicate with alien civilizations. *Planet Paranoid* shows what could happen in a few zillion years, if you land on the wrong planet.

Director
Wolfgang Morell

Producer
Fachhochschule Wiesbaden

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Plug

Plug is a short film about a futuristic society in which people live their entire lives plugged into electronic dream machines. Those who are accidentally thrust into the real world must choose between the artificial comforts of their electronic dreamlands and the difficulties and rewards of facing reality. The film is a computer animation/live-action hybrid in which live actors were filmed in front of blue screen. Every frame was digitally scanned and modified to transform the human actors into stylized cartoon characters. The modified images were then composited with computer-animated backgrounds and props, digitally compressed into an anamorphic 2.35 aspect ratio, and recorded back to 35mm film.

Director
Meher Gourjian

Producer
Jamie Waese

Collaborators
Randy Thom, Peter Rubissow, Michael Wiedeman, Patrick Grandaw, Vanessa Newell

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Jamie Waese
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Pola X

Two characters are swept away by a river of blood that flows up a canyon. The talent was filmed with a locked-down camera and integrated into a full CGI landscape.

The River: Proprietary software assembled flat sections of the river, which was animated in CGI and molded to the form of the river bed.

The Canyon: Proprietary software assembled each frame of a full CGI animatic into one single image. This image served as a model for the matte painting, which was decomposed into layers according to the depth of the elements (a huge anamorphic panorama) and placed in the CGI environment. Each layer has its own animation.

Director
Leos Carax

Producer
Bruno Pesery, Arena Films

Talent
Catherine Deneuve, Guillaume Depardieu, Katherina Golubeva, Marc Bellan, Pierre Biecher

Software
Arete, Softimage, Explore, Dynamation, Photoshop, Painter, Illusion, and proprietary software

Hardware
SGI

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Polar Bear Swim

This is the seventh spot in the internationally popular Coca-Cola campaign. In *Swim*, a baby polar bear on one iceberg looks longingly at his mother and sibling standing on another iceberg. The baby bear is afraid to jump in the water and swim across to his family. Finally, his mom pops open a bottle of Coca-Cola and, hearing that refreshing carbonated fizz, the baby dives in and swims underwater to his mom and sibling.

This completely computer-generated 30-second spot had a production staff of 17 people and a production schedule of 10 weeks. Designs were done in house at Rhythm & Hues, models were digitized into the computers, and after the models were built, the animators and lighters worked their magic. *Swim* was produced with proprietary Rhythm & Hues software on SGI Octanes.

Animation Director
Bill Kroyer

Producer
Bert Terreri

Lighting Director
Debbie Pashkoff

Head Technical Director
Georgia Cano

Lighters
Karl Herbst, Mike Sandrick

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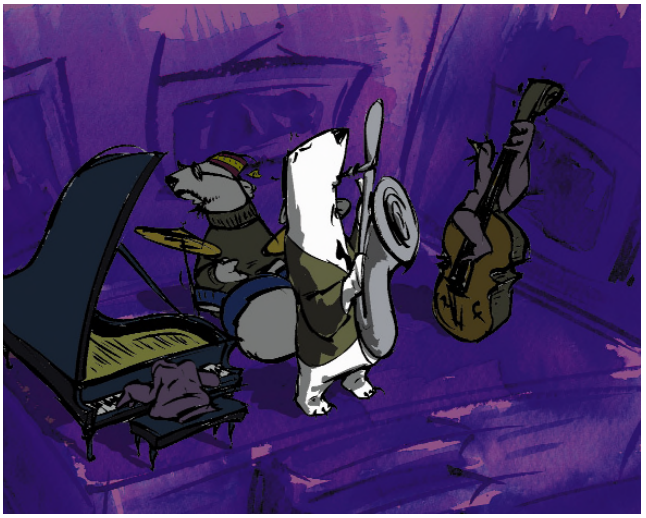
PolarLust



The "non-cool" dream of cool undertakings. But the cool, the genuinely cool, the literally cool, what do they dream about? PolarLust gives light to the wanderlust of the coolest of cool creatures, the Polar Bear, who dreams of an even cooler existence than his own: playing the late-hour, big-city jazz clubs.

Director/Producer
Joe Fournier

Collaborators
Brett Simons, Gerald Dowd, Carter Luke

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The Prince of Egypt: The Red Sea

In the "Red Sea" sequence from *The Prince of Egypt*, Rameses' army approaches in the distance, threatening to destroy the newly freed Hebrews. As a pillar of fire keeps the army temporarily at bay, Moses raises his staff to part the Red Sea. Water majestically erupts around him, opening up a passage to freedom for his people. The ground-breaking and seamless combination of computer-generated elements with hand-drawn images makes this one of the most spectacular and powerful scenes of the film.

Large-scale crashing waves are as difficult to animate in CG as they are to draw or shoot. The goal in this sequence was to convey the scale of this effect while maintaining the style of the traditionally animated film. The water surface was created with hand-choreographed procedural controls developed in Houdini software. A brush stroke was the base texture for the sprite particle system that created the RenderMan texture for the surface of the water.

Drawn images were used in the shaders, 3D sets, and particle systems to create a large-scale detailed environment with a drawn stylization. Chalice and Animo software were used for compositing. Softimage and proprietary crowd-behavior software were used for the thousands of extras. Subtle blowing mist, tidepools, morphs, and water rivulets were used to keep the background paintings alive and integrated with the animated CG water.

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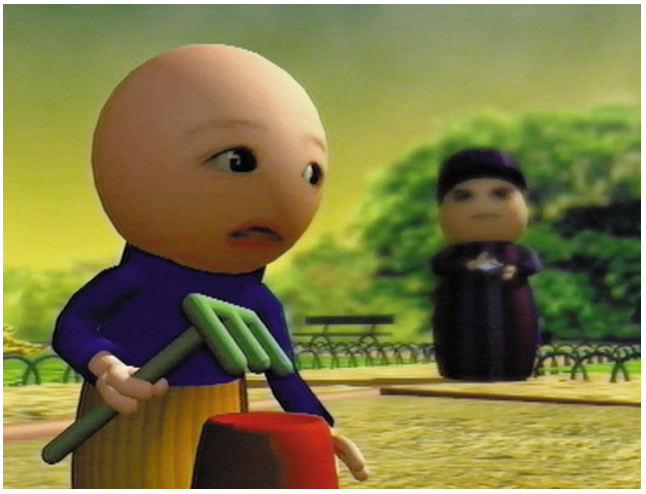
P´tit Parc



When the weather gets hot, there's nothing nicer than the coolness of the city parks. Young and old gather to enjoy a moment of peace ... and interaction.

Director
Claire Cuinier

Producer
Aii Ensad
Atelier d'Images et d'Informatique de l'Ensad

Music
Nicolas Cuinier, Olivier Rigaud, Claire Cuinier

Software/Hardware
PC, Avid, Matador, Explore, Photoshop, Premiere, Composer

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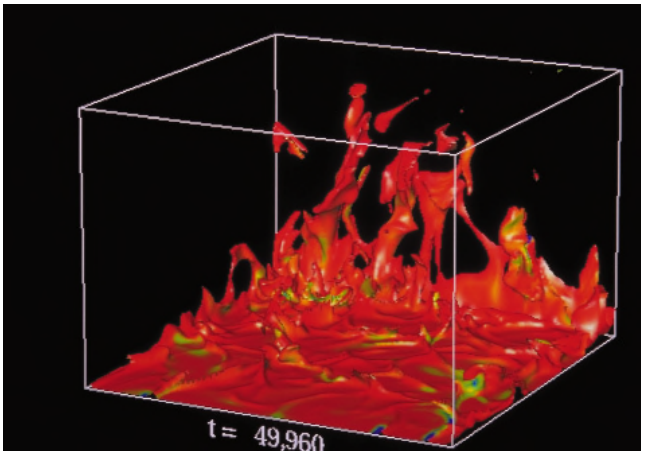
Raleigh-Benard Convection in a Closed Box



Raleigh-Benard Convection in a Closed Box is an educational video of animations that visualize a 3D simulation of turbulent thermal convection. The simulation resulted in visually interesting animations of fluid turbulence.

Director and Producer
Jim Ferry
Brown University

Numerical Simulation
Joel Welling

Rendering Software Video Support
Anjana Kar, Gregory Foss

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foss@psc.edu

Rampage Newscast

This piece was the opening cinematic for the Sony version of *Rampage 2: Universal Tour*. It was created in Animation Master and AfterEffects on Pentium Pro 200 mhz machines.

Directors
Jeff Bunker
Tyler Lybbert

Producer
Jeff Bunker

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www.avalanchesoftware.com

Rayman - No Parking

Rayman can always count on his gang of friends – and a good thing, too, because for fugitives from the vile Rigatoni Circus, there is strength in numbers!

Rayman, Betina, Cookie, Flips, and Lacmac are a merry and amusing bunch when they arrive in Aeropolis and find refuge in a pleasant apartment building. But it's not long before they discover that their next-door neighbor is none other than Sergeant Grub, the officer assigned to capture them.

The five fugitives must learn to get along and avoid Rigatoni's evil plans as they explore the vast city in which they now live. Luckily, they can count on Rayman's quick thinking and special powers to help them muddle through their problems and adventures.

Rayman is the wildly popular international hero of a whole series of video and computer games. This episode is the pilot for the *Rayman* TV series, which is scheduled to begin in autumn 2000. Production is shared among crews in Paris, Los Angeles, and Montreal. The animation and images are entirely produced on PC-based systems using commercial (3D Studio Max) and in-house software.

Director
Laurent Jennet

Producer
Francois Petavy

Executive Producers
Vanessa Coffey, Jim Ballantine

Production Supervisor
Marianne Souliez

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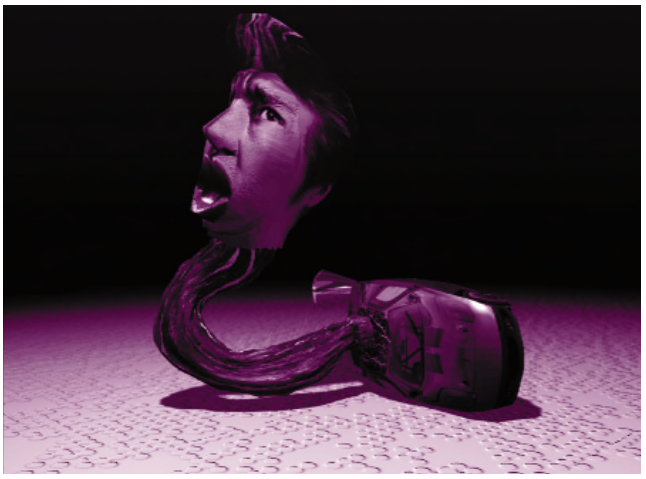
Resent Car



This story is about air pollution and the problems it causes for the environment. In the video, a young Presley look-a-like is literally attached to his car and represents the car society.

Software
Softimage, Photoshop, Illustrator, Premiere

Hardware
SGI

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Revival of Lost Creatures, Planet of Ocean

A furious battle between a sperm whale and a giant squid is brought to vivid life with CG and digital effects. This piece appeared in the *Planet of Ocean* TV series.

Computer Animation
Yoshikatu Date, Akihiko Shimamura, Keisuke Kawano, Hiroshi Miyasaka, Ryuji Sato, Tomokazu Enya, Shigekazu Enya, Hiromi Matsubara

CG Supervisor
Takehiro Okajima

CG Producer
Seiji Kunishige

Art Directors
Yoichi Iguchi, Yukiko Homma, Kayo Negoro, Masami Sanjyo

Art Producer
Akira Kobari

Technical Director
Yutaka Akutu

Photography
Hiroshi Kaneko

Lighting
Toshio Kotajima, Tomohisa Ogawa

Digital Effects
Kazuya Fujino, Hideyuki Tanida, Hitoshi Takatsuji, Yuji Amano

Special Effects
Yoshihide Okada, Takaki Yamamoto, Nahomi Aoyagi, Shinji Yabe, Fumiya Yoshizaki, Kazuya Shimizu

Visual Effects
Satoru Nagamine

Visual Effects Producer
Shinichi Tominaga

Scientific Advisors
Hidehiro Kato, Antonio Natale, Clyde Roper, Osamu Sakamoto, Satoko Seino, Hans Thewissen

Music
Taro Iwashiro

Editing
Kazuo Enokido, Mitunori Morimoto, Hitoshi Kuwabara

Producers
Kensuke Kishi, Yuichi Suwa

Executive Producers
Tetsuya Kawamoto, Hidemi Hyuga, Nobuyuki Kodaira

Software and Hardware
SGI, Alias|Wavefront Power Animator, Maya, Softimage, Renderman, 3D Studio Max

Special Thanks
NHK, 505 Studio, Digital Wizard, effect, Sony-PCL, Studio L, Locust

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Ribena Cyberries

How can you be sure that your black current juice is pure? This TV advertisement demonstrates 2.5D digital matte painting combined with ray tracing from CSG models. Water models utilise volume-rendering techniques from in-house software.

Director
David Robertson

Producer
Stuart Smith

Collaborators:
Craig McNaughton, Kylie Robinson

Music
John Couper from Yon Yon C.

Backgrounds
Peter McCully

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Geoff Wyvill
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Rolie Polie Olie

This Emmy-Award winning television series, *Rolie Polie Olie* tells the adventures of Olie, a robot boy who is growing up on an extraordinary robot world, a planet of blue skies, happy helpful machines, and a warm idealized environment where literally eveything comes to life! Olie's life and adventures center around his robot family, which includes his unstoppable and insatiably curious little sister Zowie, his loyal dog Spot, his Mom and Dad, and Pappy.

This television series is produced with Alias|Wavefront Maya, Softimage on SGI, and Intergraph computers.

A Nelvana Limited/Métal Hurlant Productions Coproduction

Executive Producers
William Joyce, Michael Hirsh, Patrick Loubert, Clive A. Smith, Fabrice Giger

Director
Mike Fallows

Producers
Corinne Kouper, Pam Lehn, Pamela Slavin

Technical Producers
Scott Dyer, Guillaume Hellouin

Animation Directors
Thierry Malherbe, Ron Pitts, Michel Raimbault

Senior Technical Directors
Christophe Archambault, Elisabeth Déréthé, Eric Flaherty

Software Support
Remko Noteboom

Supervising Producer
Stephen Hodgins

Coordinating Producer
Patricia R. Burns

Associate Producer
Emmanuele Pétry

Story Editor & Writer
Peter Sauder

Storyboard Artists
Andrew Tan, Lance Taylor, Christophe Villez

Timing Directors
Larry Cariou, Dave Cox, Ken Stephenson

Assistant Director
Bill Giggie

Art Director
Rudolph Stussi

Production Supervisor
Steve Chadwick

Production Managers
Zev Lepofsky, Caroline Souris

Production Coordinators
Susie Grondin, Estelle Moulin

Modelers
Don Bajus, Matthew Durante, Shannon Gilley, Peter Hudecki, Kelly McManus, Dave Novak, Alison Morse, Brian Newlin, Kevin Ochs, Evan Olson, Amy Sanders, Joan Staveley, Jennifer Stephenson

Layout Artists
Cyrille Caron, Pierre Yves Fave, Laurent Hubert, Arnaud de Mullenheim, Nathalie Perre, Pascal Rabil

Animation by Sparx
Ferdinand Boutard, Xavier de Broucker, Nicolas Dabos, Christophe Geron, Philippe Giffard, Christèlle Jolens, Bernard Lacroix, Constantin Maschas, Jean-Marc Ky, Philippe Penaud, Eric Prébéndé, Olivier Revillon

Lip Sync & Animation
Peter Hudecki, Robert Padovan, Mark Stanger

CGI Assembly
Mac Holyoke, James Jacobs, Luis Lopez, Scott MacMillan, Bill Pong, Alex Stephan

Colour & Lighting
Ian MacLeod, Jordan Thistlewood

CGI Compositing
Paul Van Emmerik, Fred Ni, Allison Ryckman

Systems Administrator
Ross Maudsley

Featuring voices of:
Kristen Bone, Cole Caplan, Len Carlson, Catherine Disher, Robert Smith, Joshua Tucci, Adrian Truss

Casting & Voice Director
Jessie Thomson

Casting Administrator
Karyn Tester

Recording Assistant
Kerry Bones

Script Coordinator
Leah Lepofsky

Storyboard Coordinator
Ian Baggley

Preproduction Supervisor
Rick Dubiel

Splitting Technician
John Dubiel

Breakdown
Terry Carter, Ken Hurlbut, Geoff Walton

Audio/Video Technician
Jeff Howard

Supervising Editor
Rob Kirkpatrick

Post Production Manager
Jason Held

Supervising Sound Editor
Glenn Barna

Picture Editor
Karen Saunders

Assistant Picture Editor
Ian Newport, David Blomme

Dialogue Editors
Brian Fraser, Michael Werth

Sound Effects Editors
John Baktis, Eric Mattar-Hurlbut, Hamish MacKenzie, Evan Turner

Music Producer
Stephen Hudecki

Music by Great Big Music Inc.:
Brent Barkman, Peter Coulman, Carl Lenox, Tim Thorney, Tom Thorney

Music Editors
Peter Branton, Anthony Crea, Mike Northcott

Additional Production Facilities
Medallion/PFA Film & Video, Studio 306, Windlight Studios

Recording Engineer
Robert Cobban

Re-Recording Engineer
Jamie Sulek

On Line Editor
Keven Berengredt

Produced by Nelvana Limited and Métal Hurlant Productions s.a.r.l in coproduction with La Cinquième with the assistance of the Government of Canada - Canadian Film or Video Production Tax Credit program and the participation of Telefilm Canada and Centre National de la Cinématographie in association with The Canadian Broadcasting Corporation and Disney Channel.

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Ronin Romance Classics

Because of a faulty toaster, an "average" housewife finds that she has replaced the heroine in one of her treasured romance novels. Beset by the whims of fortune and multiple love interests, she struggles to maintain her dignity and chastity, with varied results. She also discovers that fantasy is fine, but boys will be boys.

Musical Score
Paul Hartwig

Software
Softimage, Flame, ProTools

Hardware
SGI 2 Extreme

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The Round Earth Project

This video describes an investigation into how virtual reality technology can be used to help teach concepts that are counter-intuitive to a learner's currently held mental model. In this case, VR helps teach young children that the Earth is spherical by allowing them to explore a small asteroid where the implications of living on a spherical body are more apparent.

Two children collaborate in the learning activity. One child explores the surface of the asteroid as an astronaut. The second child acts as mission control, guiding the first child with a spherical view of the asteroid. The children talk to each other and integrate their different views to accomplish their mission.

The models were created using Alias|Wavefront Power Animator and then loaded into the SGI Performer-based version of the CAVE library, which manages the VR experience. The visuals were captured in real time during a visit to the asteroid.

Collaborators
Jim Costigan and the
Round Earth team

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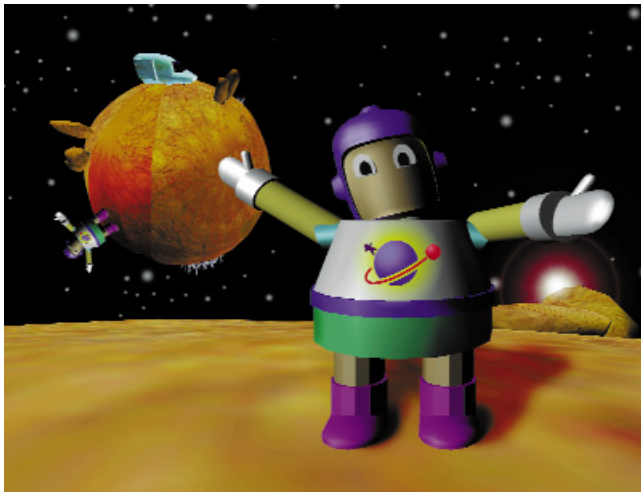

Salad Bowl: A Carrot's Tale

When the early morning sun breathes life into an olive oil bottle and her vegetable minions, a game of carrot bowling is set to begin. But first, our bowling bottle must convince a reluctant young baby carrot to line up in formation.

This light-hearted short was completed as an after-hours project by a group of software engineers. Every scene in the film was animated with an evolved version of the ImageTimer system presented in an animation sketch at SIGGRAPH 98.

The project served dual purposes as both a training exercise and a test bed for a suite of proprietary animation tools. This system attempts to simplify the animation process while introducing paradigms familiar to the traditionally trained artist. The animator begins by creating poses for a character. Next, a custom plug-in records snapshots of these poses into a proprietary playback tool that contains a built-in exposure-sheet editor that the animator can manipulate to interactively adjust the timing of the loaded images. These timed images form a "pose test." The animator can apply these timing changes back to the 3D model – in effect, synchronizing the 3D animation data to the exposure sheet. The animator can further refine the animation by constructing digital timing charts that offer an efficient timing control mechanism and allow animators to time most scenes without ever touching an animation curve.

Director/Producer
Michael S. Blum

Artistic Supervisor and CGI Lead
Mike King

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Sandland

The story: Nils is the lighthousekeeper at Sandland, with no contact with the world outside. One day, the grumpy Onk lands on the island, and everything is changed forever into a fantastic adventure. *Sandland* is a complete 3D computer-animated film with some 2D effects produced as a diploma-work at Filmakademie Baden-Wurttemberg.

Character Animation
Heiko Lueg and Matthias Wittmann

Special Effects
Heiko Lueg and Jan Stoltz

Editor
Arndt Stöwe

Music
Marius Ruhland

Sound Design and Mix
Uli Auer

Story and Production Design
Heiko Lueg

Software
Softimage 3D

Hardware
SGI Indy and O2 workstations

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Saving Private Ryan

ILM was called on to recreate Omaha Beach on the third day after the Allied Forces' D-Day invasion. Motion-control passes of the empty beach were composited with motion-control passes of thousands of soldiers. Hundreds of computer-generated period ships were animated and rendered. A combination of CG, digital matte, and proprietary Sabre system techniques were used to complete the "story-telling" shot.

Visual Effects Supervisor
Stefen Fangmeier

Co-Visual Effects Supervisor
Roger Guyett

Visual Effects Producer
Kim Bromley

Associate Visual Effects Producer
Heather Smith

Visual Effects Art Director
Alexander Laurant

Color Timing Supervisor
Kenneth Smith

CG Sequence Supervisor
Gregor Lakner

Sabre Supervisor
Pablo Helman

CG Artists
Kathleen Beeler, Terry Chostner, Gonzalo Escudero, Bridget Maria Goodman, Joanne Hafner, Mary McCulloch, Jennifer Devar McKnew, Christa Starr, Paul Theren

Sabre Artists
Caitlin Content, Chad Taylor

Digital Matte Artist
Matthew Hendershot

Visual Effects Production Coordinator
Lori Arnold

Visual Effects Editor
Bill Kimberlin

Scanning Supervisor
Josh Pines

Visual Effects Camera Operator
Martin Rosenberg

Visual Effects Camera Assistant
Robert Hill

Lead Effects Technician
Geoff Heron

Effects Technician
Dan Nelson

Stage Technicians
Carl Assmus, Berny Demolski, Robert Doherty

Film Scanning Operator
George Gambetta

Negative Line-up
Tim Geiderman

Plate Restoration
Trang Bach-Jasko

Digital Production
Kathleen Michele Davidson, Jennifer Gonzalez, Garrick Meeker, Erin West

Digital Technologies
Danny J. Lee, Jeffrey Yost

Visual Effects Production Assistant
Amanda K. Montgomery

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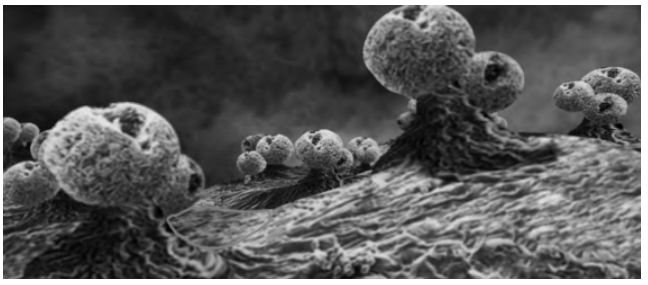
SCInema Event



Roger Guillen
Sean Eno
Walter Lubinski
Scott Sindorf
Craig Gitman
Brett Miller
Ed Manning
Shinping Cody Chen
Nestor Zaluzec
Roy Nelson
Dee Breger
Cliff Schwarz

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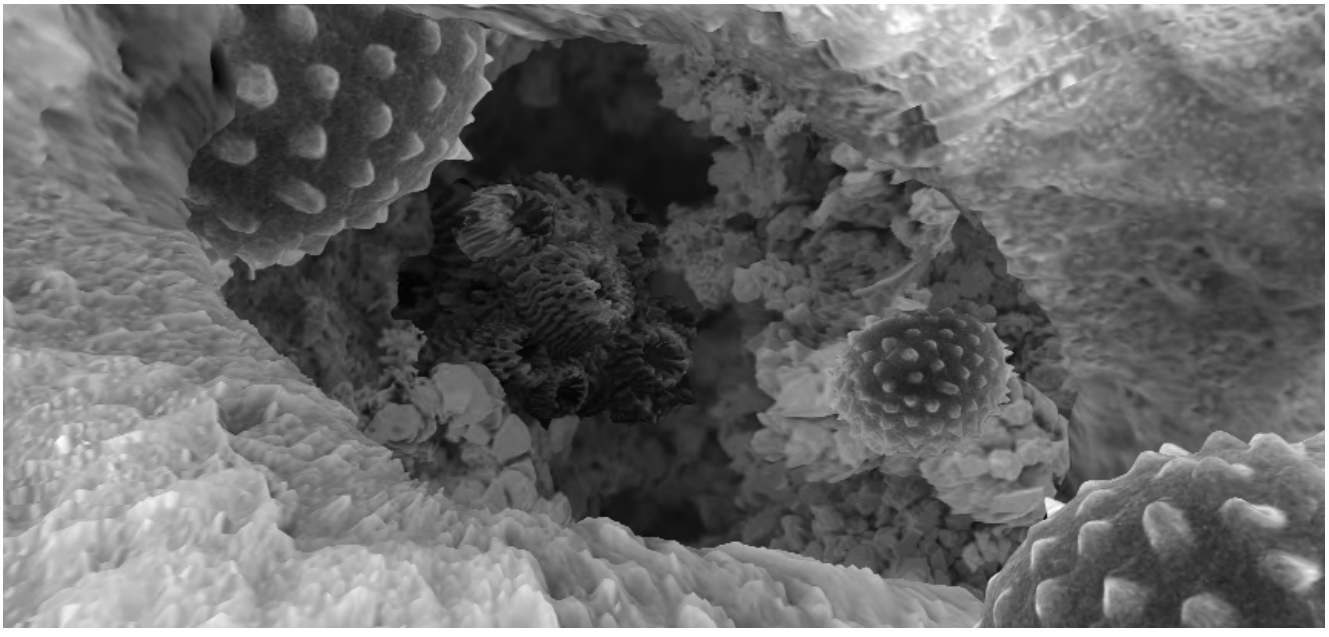
www.liquidesign.com

SCInema Event is a 20-second movie open for the Thursday night feature on the Sci-Fi Channel. The creative impetus was the idea of witnessing a sci-fi moment. Dee Bregers' book, *Journeys in Microspace*, a collection of scanning electron microscope imagery, provided the aesthetic inspiration for the piece. The result is a journey through an alien terrain that reveals itself as a familiar object, a kernel of popcorn.

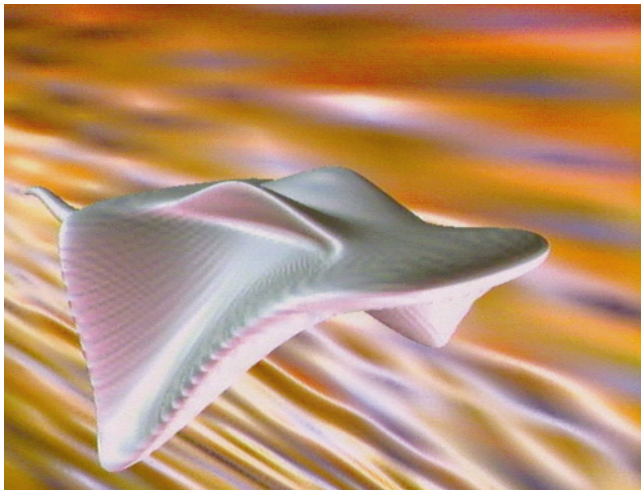
In response to an email request to the Microscopy Society of America, many microscopists around the world volunteered to help with the animation. The team began the production process by photographing samples with a scanning electron microscope, mounting the samples on a rotating stage, and shooting at 90-degree increments. Microscopists photographed the objects at incremental magnifications (10x - 10,000x) so that detailed texture maps could give way to lower resolutions as the CG camera pulls away from the objects. After scanning the photographs, the animators mapped the textures onto primitives in Softimage. Hardware texture mapping in the shaded window was used to model the primitives interactively and create the rough geometry for the scene. Mental Ray displacement and spatial subdivision techniques yielded a high level of detail in the scene geometry.

A unique characteristic of electron microscopy is highlighted edges. This effect was replicated in the compositing stage by rendering an edge pass. A negative light source constrained to the camera, high-scene ambient lighting, and a Lambert shading model created an edge illumination pass that is uniform on all sides of the object. This created a matte that could then be used to additively composite the beauty image over itself to complete the lighting effect.



Sea Dance

Sea Dance simulates organic life in an artificial medium by using morphological principles of growth, with shapes, colors, movements, and sounds, both real and imagined. It creates a living, growing, flowing environment in which viewers can briefly live and experience the ever-changing nature of life in a virtual sea. Through proprietary software developed by Yoichiro Kawaguchi, this concept is brought to fruition and, hopefully, to life.



Director and Animator
Yoichiro Kawaguchi

Producer
Steven Churchill

Music
Tangerine Dream

Software
Proprietary

Hardware
SGI

Contact
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Odyssey Productions
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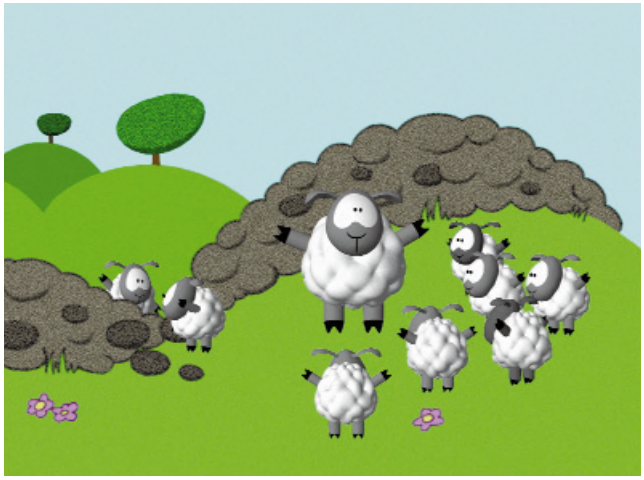
Sheeps

A satirical story about a sheep community learning to live together.



Technique
3D animated characters on 2D backgrounds.

Software
Hash Animation Master, Adobe Photoshop, Adobe After Effects.

Contact
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ShutterBug

In this student film, God meets man, and introductions are brief.

Director
Joseph Brumm

Producer
Darren Thomas
Queensland College of Art

Software
Softimage3d

Hardware
Compaq workstations

Contact
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Griffith University
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Silent Hill

These are the opening movie-style computer graphics from a PlayStation adventure game. The story: Harry and his daughter were involved in a car accident while on vacation. When Harry comes to, he finds his daughter missing, and the game continues as he searches for her. The location of this adventure is a mysterious town called Silent Hill.

The opening sequence expresses the view of a father desperately looking for his child and encountering many other characters in the game. The story builds on a wide range of emotions: loneliness, sorrow, preparation for death, and even kaleidoscopes of life.

The basic materials were created with Softimage and Adobe Photoshop. Then the composition was realized with Avid's Illusion and edited with Jaleo. The original version of this piece was awarded a prize at the 1998 Culture and Media Art Festival in Japan.

Director
Takayoshi Sato

Producer
Gozo Kitao

Collaborators
Akira Yamaoka, Kenichiro Imaizumi

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Skydivers

For Coca Cola, and under the direction of feature director Jan De Bont, Digital Domain's Lightwave group created a group of CG skydivers to form a distinctive bottle of Coke. Beginning with practical photography of four stuntpeople, Digital Domain's NT group duplicated and then animated more than a hundred "virtual" skydivers for this award-winning spot.

Director
Jan De Bont

Producer
Edge Creative

VFX Supervisor
Ray Giarratana

VFX Producer
Todd Isroelit

VFX Coordinator
Koery J. Cauchon

CG Supervisor
Eric Barba

Lead Digital Artist
Wayne England

Digital Artists
David McLean, Doug Wolf, Dennis Price, Doug Sayre, Hudson Shock, Dave Bleich

Compositor
David Stern

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Snack and Drink

Ryan goes to 7-11 for a snack and drink in this animated jaunt that uses proprietary software developed by the director.

Director
Bob Sabiston

Producer
Tommy Pallotta

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Slacker

Even though he has an excessive amount of work to do, Slacker decides to ignore his responsibility and in the end, must pay the price.

The character setup of Slacker seems fairly simple but it actually ended up being more complicated than its initial intention. Both characters had a fair amount of controllers that manipulated the entire body. Inverse kinematics were used for arms and legs, and forward kinematics were used for the ears. Constraints and lattices were implemented throughout the characters to achieve good deformations, such as belly creasing within the trousers including the arms and legs.

The piece was created using Alias|Wavefront Maya 1.5 running on Silicon Graphics workstations. Textures were painted in Studio Paint 4.0, and final compositing including sound effects with Composer 5.0.

Director
Andreas Procopiou

Producer
Ringling School of Art and Design

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Softy Puffs: Paper Chase

In this parody of toilet-paper advertising, a walking bottom is pursued by a low-grade roll of paper but is saved in the nick of time by a cushy, heroic toilet paper counterpart. The spot was produced in Maya, PowerAnimator, Composer, StudioPaint and Photoshop.

Director
Shannon Gilley

Producer
Amy Sanders

Supervising Producers
Terry Friedlander and
Kelly McManus

Creative Director
Don Bajus

Lead Technical Director
Matthew Durante

Lead Animator
Brian Newlin

Lead Modeler
Evan Olson

Technical Directors
Christopher Ebbert and David Novak

Animators/Modelers
Alison Morse, Joan Staveley, and
Jennifer Stephenson

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Sorb

Sorb is a paradox of two environments. The two biological systems move through time unaware of the other's existence, but each is dependent on the other.

Modeling, lighting, and animation were done with LightWave on the Macintosh platform. Sound was synthesized and sampled with Sound Edit 16. Textures were manipulated with Photoshop. Post-production was done with Premiere.

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Spatial Frames

Spatial Frames reveals the mechanics of a character's world and addresses the classic "evil demon" philosophical hypothesis and its specific application to characters in a computer graphics animation. The inner story simply follows a man waking up and going out to walk his dog in a world that is being constructed on the fly by a series of machines. They finish assembling the hallway just as he steps into it and immediately begin dismantling his apartment. The entire set of machines is in turn on display in one room of a long hallway. Ultimately, the image plane of the animation is exposed and removed from view.

Different rendering and compositing styles separate each layer. The piece was animated entirely in Softimage and rendered with GL. Image processing and compositing were done with Eddie.

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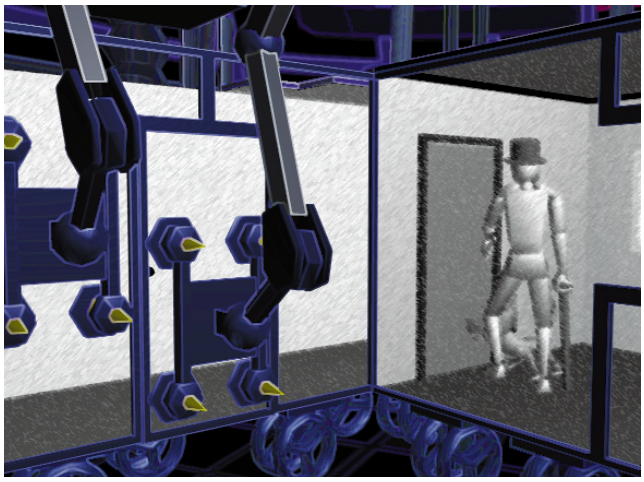

Star Wars Episode 1: The Phantom Menace

A cast of 76 distinct CG creatures and droids join Qui-Con, Obi-Wan, Padme, Anakin, and others in the most ambitious visual effects film ever, with nearly 2,000 visual effects shots featuring dozens of fully digital environments such as desert race terrains, the underwater city, the generator room and the galactic senate chamber; fully clothed CG characters and stunt doubles; complex physical simulations for crashing pods and sliced droids; detailed CG and practical models and shots with hundreds or thousands of animated elements. "I don't care what universe you're from. That's gotta hurt!"

Visual Effects Executive Producer
Chrissie England

Visual Effects Producers
Ned Gorman, Jeff Olson, Heather Smith
Ginger Theisen, Judith Weaver

Visual Effects Production Designer
Doug Chiang

Lead Computer Graphics Supervisor
Kevin Rafferty

Associate Visual Effects Supervisor
Barry Armour

Visual Effects Art Director
David Nakabayashi

Ground Battle Animation Supervisor
Tom Bertino

Digital Modeling Supervisor
Geoff Campbell

Technical Animation Supervisor
James Tooley

Viewpoint Supervisor
Jean Bolte

Additional Visual Effects Supervisor
Scott Farrar

Creature Developer Supervisor
Tim McLaughlin

Computer Graphics Supervisors
Jon Alexander, Tim Alexander, Christophe Hery, Tom Hutchinson, Euan Macdonald, Greg Maloney, Patrick T. Myers, Doug Smythe, Habib Zargarpour

Lead Animators
Linda Bel, Peter Daulton, Lou Dellarosa, Miguel Fuertes, Hal Hickel, Paul Kavanagh, Kim Thompson, Marjolaine Tremblay

Sequence Supervisors and Development Leads
Kevin Barnhill, Michael Di Como, Howard Gersh, Dan Goldman, Samir Hoon, Dorne Huebler, Michael Ludlam, Robert Marinic, Stuart Maschwitz, Terrence Masson, David Meny, Curt Miyashiro, Steve Molin, Hiromi Ono, Amanda Ronai-Dahle, Sean Schur, Douglas Sutton,Chad Taylor, Christopher Townsend, Christopher White

Digital Effects Artists
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Character Animators
Philip Alexy, Chris Armstrong, Patrick Bonneau, Susan Campbell, Marc Chu, Chi Chung Tse, Kyle Clark, Bruce Dahl, Andrew Doucette, Steve Lee, Jacques Muller, Magali Rigaudias, Andrew Grant, Paul Griffin, Kent Hammerstrom, Tim Harrington, Jason Ivimey, Shawn Kelly, Ken King, Martin L'Heureux, Victoria Livingstone, Kevin Martel, Glen McIntosh, Neil Michka, Christopher Minos, Christopher Mitchell, Julie Nelson, Steve Nichols, Dana O'Connor, Rick O'Connor, David Parsons, Steve Rawlins, Jay Rennie, Trish Schutz, Tom St. Amand, Glenn Sylvester, Si Tran, Scott Wirtz, Andy Wong, William R. Wright

Digital Model Development and Construction Artists
Stephen Aplin, Ken Bryan,Donna Beard, Dugan Beach, Scott Bonnenfant, Robert Bruce, Andrew Cawrse, Simon Cheung, Catherine Craig, Aaron Ferguson, Paul Giacoppo, Derek Gillingham, Rebecca Heskes, Jean-Claude Langer, Lenny Lee, Sunny Li-Hsien Wei, Alyson Markell, Russell Paul, Aaron Pfau, Corey Rosen, David Saccheri, Tony Sommers, Howie Weed, Ron Woodal, Elbert Yen

Digital Matte Artists
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Rotoscope/Paint Supervisors
Susan Kelly-Andrews, Jack Mongovan

3d Matchmove Supervisors
Keith Johnson, David Washburn

Lead Visual Effects Coordinator
Lisa Todd

Research & Development Supervisor
Christian Rouet

Visual Effects Production Accountant
Joshua Marks

Additional

Matte Paintings
Bill George

Projectionist
Kenn Moynihan

Motion Capture Supervisor
Jeff Light

Digital Color Timing Supervisors
Bruce Vecchitto, Kenneth Smith

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Scott Balcerek, David Tanaka, Greg Hyman, John Bartle

Visual Effects Coordinators
Alexandra Altrocchi, Lori Arnold, Liz Brown, Michaela Calanchini, David Dranitzke, Vicki Engel, Monica Gougeon, David Gray, Susan Greenhow, Amanda Montgomery, Luke O'Byrne, Christine Owens, Penny Runge, Robin Saxen, David Valentin

Digital Rotoscope/Paint Artists
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3d Matchmove Artists
Alia Agha, Jim Hagedorn, David Hanks, Luke Longin, David Manos Morris, Joseph Metten, Dani Morrow, Melissa Mullin, Talmage Watson, R.D. Wegener

Motion Capture Group
Alexandre Frazao, Douglas Griffin, Ann McColgan, Seth Rosenthal, Michael Sanders

Visual Effects Storyboard/Conceptual Artists
Brice Cox Jr., Warren Fu, Jules Mann, Noel Rubin

Film Scanning and Recording
Randall Bean, Earl Beyer, Andrea Biklian, Michael Cordova, Michael Ellis, George Gambetta, Tim Geideman, Lydia Greenfield, Nancy Jencks, Doug Jones, James Lim, Todd Mitchell, Josh Pines, Stephanie Taubert, Alan Travis

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Visual Effects Production and Technical Support
Noel Brevick, Sean Casey, Mei Ming Casino, Fay David, Tom Firestone, Douglas Applewhite, Cedrick Chan, Brian Gee, Kathy Gardner, Diana Gazdik, Sam Granat, Kaleem Karman, Brian Kasper, Todd Krish, Bill Grinder, Sean Hoessli, John Levin, Kimberly Lashbrook, Jonathan Litt, Daniel Lobl, Dana Masino, Jennifer Nona, Marisa Pearl, David Owen, Don Rottiers, Masayori Oka, Kim Orla-Bukowski, Mike Peters, Marc Sadeghi, Leslie Safley, Damian Steel, Bill Tlusty, Anthony Shaver, Marc Wilhite, Carrie Wolberg

Digital Operations and Technology Group
Brian Brecht, Endla Burrows, Kipp Aldrich, Ken Beyer, Stewart Birnam, Gail Currey, Vicki Dobbs Beck, Russell Darling, Greg Dunn, Scott Grenier, Shannon Henry, Jay Johnson, Mary Hinman, Jeff King, Dan Lee, Nancy Luckoff, Ken Maruyama, Raleigh Mann, Garrick Meeker, Will Melick, Cliff Plumer, Beth Sasseen, Gary Meyer, Fred Meyers, Joe Takai

Miniature Construction and Photography Unit Model Supervisor
Steve Gawley

Chief Model Makers
William Beck, Steve Walton, Barbara Affonso, Brian Gernand, Charlie Bailey, Keith London, Giovanni Donovan, Lorne Peterson, Ira Keeler, Michael Lynch

Model Makers
Lauren Abrams, Carl Assmus, Carol Bauman, Salvatore Belleci, Don Bies, Nick Blake, Nick Bogle, Jeff Brewer, Phil Brotherton, Mark Buck, Nick D'Abo, Fon Davis, Brian Dewe, Robert Edwards, Mark Fiorenza, David Fogler, Jon Foreman, Chris Goehe, Jon Guidinger, Peggy Hrastar, Aaron Haye, Grant Imahara, Erik Jensen, Michael Jobe, Kelly Lepkowski, Alan Peterson, Victoria Lewis, Todd Lookinland, Alan Lynch, Scott McNamara, Amy Miller, Rodney Morgan, Wendy Morton, Dave Murphy, Randy Ottenberg, Mark Walas, Tony Preciado, Tom Proost, R. Kim Smith, Michael Steffe, Eben Stromquist, Larry Tan, Trevor Tuttle, Lauren Vogt, Danny Wagner, Melanie Walas, Kevin Wallace, Chuck Wiley, Julie Woodbridge, Eran Yachdav

Effects Directors of Photography
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Gaffers
Michael Olague, Tim Morgan

Key Grips
Bill Barr, Bernie Demolski

Camera Operators
Carl Miller, Vance Piper

Chief Costumer
Annie Polland

Camera Engineering
Greg Beaumonte, Mike Mackenzie, Duncan Sutherland

Assistant Camera Operators
Bob Hill, John Gazdik, Michael Bienstock

Stage Coordinator
Megan Carlson

Grip and Electric Crew
Joe Allen, Tom Cloutier, Ron Diggory, Dennis Gehringer, Danny Michalske, Craig Mohagen, Chuck Ray, John Siler, Dave Watson

Special Effects Pyrotechnics Crew

Special Effects Supervisor
Geoff Heron

Special Effects Best Boy
Robbie Clot

Special Effects Technician
Dave Heron

Data Capture System
Arri Media

Visual Effects Processing & Prints
Monaco Laboratories

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Star Wars Episode 1: The Phantom Menace - Research and Development Highlights

This compilation illustrates the key in-house technologies used by the hundreds of digital artists at ILM to create the visual effects in *Star Wars Episode 1: The Phantom Menace*. Creation of principal CG characters such as Boss Nass or Jar Jar Binks is shown in modeling, texturing, and animation sequences. Other sequences feature physically based animation of skin, clothing, or props; motion-capture and rigid-body simulation techniques on Battle Droids; image tracking and compositing on various shots from Tattoine; digital fur on Eopies and Banthas; and specific modeling, texturing, and interactive lighting methods that helped manage the complexity of the Pod Race sequence.

Most images were created from actual screen snapshots of CG applications that were developed by the Research and Development Department at ILM during the two-year R&D period that this movie required. The original music was designed together with the visuals and was generated electronically from real-time input controls. The entire piece was edited in Loupe and is best displayed at 24 fps from the live high-resolution video output of an SGI O2 workstation.

Concept, Editing, and Music
Christian Rouet

Modeling Sequence
Nicolas Popravka, Geoff Campbell

3D Painting Sequences
Eric Schafer

Animation Sequences
Vishwa Ranjan, Marjolaine Tremblay

Simulation Sequences
John Anderson

Imaging Sequence
Steve Sullivan

Fur Rendering Sequence
Florian Kainz

Motion Capture Sequence
James Tooley

Terrain Sequence
Dan Goldman

Real-Time Layout & Formatting
Vincent Toscano

A very special thank you to the over 350 digital artists and the entire ILM Visual Effects Production Team for their work on *Star Wars Episode 1: The Phantom Menace*, and for their great help and support: Vicki Dobbs Beck, Brian Brecht, Matthew Davies, Nancy Luckoff, Yves Metraux, Beth Sasseen.

ILM R&D Department
John Anderson, David Benson, Rod Bogart, John Horn, Jim Hourihan, Zoran Kacic-Alesic, Florian Kainz, Cary Phillips, Nicolas Popravka, Vishwa Ranjan, Christian Rouet, Alan Trombla, Eric Shafer, Steve Sullivan, Vincent Toscano, Jeffrey Yost.

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Stray Sheep

In this sequence of an upcoming PlayStation RPG, *The Adventure of Poe and Merry*, an evil wolf seeks the cure to an unusual disease. His guards set out in a flying ship to gather all the black sheep in the world. This does not bode well for Poe's new friend, Merry. Poe is the main character of a popular midnight TV show broadcast by Fuji Television who wanders between dream and reality.

Director
Shinji Nomura

Producers
Yoshihisa Hirano
Noriko Kurachi

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Stuart Little

Stuart Little, based on the classic story by E.B. White, represents one of the most ambitious challenges to date in photo-real, 3D, performance-based digital character creation. Fully vested with a personality, digital wardrobe and fur, language, and the subtlety of expression, Stuart stars with live-action actors Geena Davis, Hugh Laurie, and Jonathan Lipnicki in over 400 shots (one sequence was selected for submission to SIGGRAPH 99). Michael J. Fox is the voice of Stuart Little. Rob Minkoff (*Lion King*) is the director.

In addition to creation of the lifelike character and his performance, with its wide range of movement and emotion, the challenge for the Sony Pictures Imageworks team was to integrate Stuart into the live action, placing the completely digital star next to live actors and cats (with real cloth, real hair, real fur, and other genuine textures and lighting characteristics) throughout every frame. This sequence also features digital examples of dry, wet, and partially wet fur and cloth, water, and lighting. *Stuart Little* is scheduled for theatrical release in December 1999.

Director
Rob Minkoff

Sr. Visual Effects Supervisor
John Dykstra

Visual Effects Supervisor
Jerome Chen

Animation Director
Henry F. Anderson III

Sr. Visual Effects Producer
Michelle Murdocca

Visual Effects Producer
Lydia Bottegoni

Associate Producer, DCG
Audrea Topps-Harjo

Digital Production Manager
Jody Echegaray

CG Supervisors
Jim Berney
Bart Giovanneti
Jay Redd
Scott Stokdyk
John McLaughlin

Visual Effects Artists
Maura Alvarez
Bill Ball
Kiki Candela
Daniel Eaton
Dave Lawson
Scott McKee
Kerry Nordquist
Aaron Smith
Dave Smith
Jason Dowdeswell
David Allen
Didier Levy
Mike Travers
Robert Peitzman
Doug Yoshida
Jeff Wolverton
Layne Friedman
Rob Bredow
Rob House
Tim Llewellyn
Rob Engle

Digital Character Animators
Dave Mullins
Kelvin Lee
Anthony LaMolinara
Pepe Valencia
Dominick Cecere
Dave Vallone
Eric Armstrong
Delio Tramontozzi
Bill Diaz
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Software Engineers
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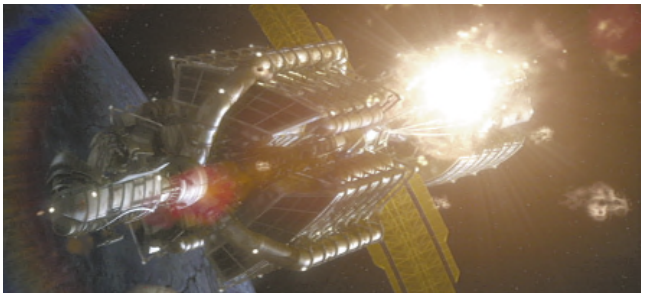
Supernova



For MGM, and under the supervision of Mark Stetson (*The Fifth Element*), Digital Domain created over 240 shots for *Supernova*, a futuristic space adventure that features a multitude of CG elements, environments, and rendered models integrated with practical motion-control stage photography. Digital Domain's integration team created a remarkable CG Houdini interface for pre-visualization and stage-model photography that linked with our Lightwave group's CG model work on the "hero" space ship and completely CG shuttle vessel.

Director
Walter Hill

Producer
MGM

Visual Effects Producer
Julian Levi

Digital Effects Supervisor
Jonathan D. Egstad

Computer Graphics Supervisors
Eric Barba, Kelly Port

Digital Compositing Supervisor
Carey Grant Villegas

Digital Production Manager
Lisa K. Spence

Visual Effects Art Director
Ronald A. Gress

Miniature Effects Art Director
George Trimmer

Miniature Effects Supervisor
Scott Schneider

Visual Effects Director of Photography
Bill Neil

Visual Effects Editor
Debra Wolff

Lead Technical Directors
Judith Crow, Mike O'Neal, David Prescott

Digital Team Leads
Marko Brown, John Michael Courte, Francisco X. De Jesus, Sean Andrew Faden, Ronald D. Herbst, Nikos Kalaitzidis, Markus Kurtz, Vernon R. Wilbert Jr.

Digital Artists
James J. Atkinson, Adam I. Chrystie, Tim Conway, Avi Das, Michael Edland, Wayne England, Robert A. D. Frick, Gonzalo Garramuno, Johnny Gibson, Swen Gillberg, David Hodgins, Nicholas Sanger Hoppe, Kseniya Hoppe, Alan Kapler, Dan Kaufman, Mathew Lamb, Dan Lemmon, John A. Lima, David Lo, Rodney J. McFall, Michael A. Miller, Robert G. Nederhorst, Samuel L. Nunez, Danielle Plantec, Dennis Price, Douglas J. Seiden, Toshiaki Shiozawa, Messrob Torikian, Zachary Tucker, Mark Wilson, Robert Yang

Lead Digital Compositors
Bryan M. Grill, Darren M. Poe, David Stern

Digital Compositors
Jeffrey S. Arnold, Richard Dunn, Michael J. Frick, Craig Halperin, Claas Henke, Paul Kulikowski, Mark M. Larranaga, Christine Lo, Lou Pecora, Donovan A. Scott, Bill Spitzak

Lead Digital Matte Painter
Martha Snow Mack

Digital Matte Painters
David R. Bleich, Shannan Burkley, Tony Halawa, David Shwartz

Digital Rotoscope Artists
Jason Greenblum, Laura E. McDermott, Bill Schaeffer, Byron D. Werner

Visual Effects Coordinators
Joel Rom·n MendÌas, Laura Schultz

Digital Effects Coordinators
Rick T Jaynes, Lisa Harriman Scott, Tracy Takahashi

Technical Coordinator
Brian Goldberg

Color Graders
Jeffrey Kalmus, Tarcis M. C. Verfaille

Visual Effects Photography Unit

Associate Producer
Steve Dietrich

Stage Production Manager
Kelly L'Estrange

Motion Control Camera Operators
Josh Cushner, Michael Karp

Motion Control Camera Assistants
Nic Nicholson , AJ Raitano

Motion Control/Mechanical Supervisor
Scott Salsa

Key Grip
Joe Celeste

Best Boy Grip
Jim Moriarty

Grips
Tom Conway, Eric Donaldson , Ernie Garcia, Matt Siess , Tony Willard

Gaffer
George Ball

Best Boy Electric
Scott Graves

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Cindy Lagerstrom, Chris Lewis, Brian McEachen, Bob White

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Pyrotechnics Support
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Stage Manager
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John Higbie

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Jesse James Chisholm

Miniature Effects Unit

Model Shop Supervisor
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Model Shop Foreman
Sarkis Hardy

Illustrators
Ben Edelberg, Jim Key

Model Leads
Michael Possert, Brian Ripley, Nick Seldon, Ken Swenson

Lead Model Painter
Ted Van Dorn

Model Painters
Richard Ewan, Sean Gilleran

Stand By Model Painter
Laura Grijalva

Model Sculptors
Jaroslaw Alfer, Michelle Milay

Lasercam Operator
Andre Chaintreuil, Phillipe Chaintreuil

Model Makers
Dave Beasley, Dave Chamberlain, Erik Coon, Mykel Denis, Adam Gelbart, Tom Griep, Brent Heyning, Scott Lukowski, James McGeachy, Ray Moore, Tim Niver, Paul Ozzimo, Logan Payne, James Peterson, JD Sansaver, George Stevens, Tamara Waters, Alex Watts, George Willis, Kurt Zendler

Mold Makers
Mark Dillon, Tony Echeverria, Pat Hinkle, Richard Slifka, Eddie Turner

Model Electricians
Gary Martinez, Brett Philips

Model Shop Coordinator
Lupe Cabrera

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Gary Uline

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James Doh, Jamie Rama

Conceptual Artist
Tom Southwell

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Video I/O
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Executives in Charge of Production
Nancy Bernstein, Scott Ross

Special Thanks to:
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Tatlin's Tower

Shortly after the Russian revolution, Tatlin, a Soviet sculptor, proposed a Monument for the Third International, a wildly twisted steel structure designed to stand taller than the Eiffel Tower. Although the tower was never built, Tatlin's final dream was to violently insert it into St. Petersburg, Russia's classical capital. This film is an attempt to visualize its extraordinary form, scale, and materiality in the live urban context of the city.

Director/Producer
Takehiko Nagakura

Collaborators
Andrzej Zarzycki, Dan Brick, Mark Sich

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Tightrope

The Jester moves along a tightrope through a mystical, cloud-like milieu. His open face reveals inquisitive eyes. For The Jester, life is a joy to behold.

Suddenly, he comes upon another man moving towards him – on the same tightrope. The other man, The Suit, has an ominous gray demeanor. His face is obscured by a dark mask. The Jester extends a hand in friendship, which is rebuffed by The Suit, who then tries to knock The Jester off the tightrope.

The Jester reveals an assortment of magical tricks. Not to be outdone, The Suit responds with a desperate act that has possibly dire consequences for both characters.

Created over the course of 11 months, *Tightrope* is a five-minute, all-CG-animated short film, written and directed by Daniel Robichaud, with Stephane Couture and Bernd Angerer serving as animation supervisors/lead animators. Produced by Scott Ross and Digital Domain, this allegorical tale showcases Digital Domain's ability to bring art and technology together to create a beguiling story. The team of artists developed new real-time controls to create complex facial expression and nuance.

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To Be or Not To Be

A very brief and neurotic interpretation of Hamlet's soliloquy based on the Reduced Shakespeare Company's performance of Hamlet. The inspiration came from seeing Arnold Schwarzenegger trying to be Hamlet in *Last Action Hero* and a desire to recreate and prolong the pure pleasure of witnessing something so odd.

Directors
Peter Lee, Chihoon Lee

Producer
Peter Lee

Collaborators
Chihoon Lee, Igor Dvoski

Software
Maya, Photoshop, and Premiere

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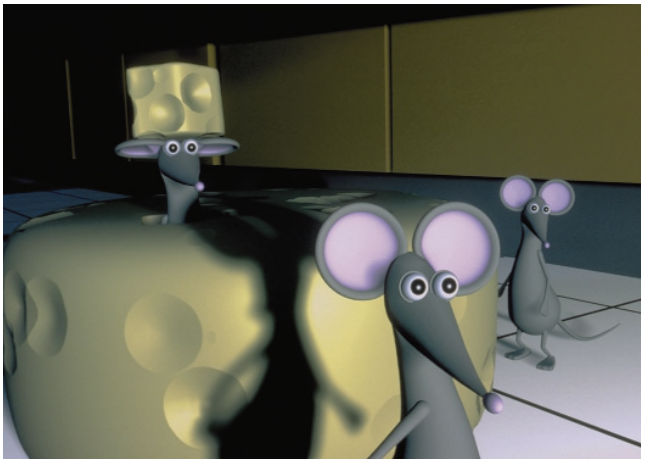
To Build A Better Mousetrap



The mousetrap of tomorrow is here today! The Merchant of Death 2000 doesn't just trap mice. It seeks out and destroys them! A technological leap forward in both artificial intelligence and household appliances, the MOD2000 makes all other forms of pest control obsolete. Be the first to brag that you own a Merchant of Death! Another miracle of science from Blackmire Industries.

To Build a Better Mousetrap was produced in the offices of Digital Filmworks in Hollywood. The cartoon was modeled, animated, and rendered with PowerAnimator 8.5, using an SGI Indigo 2, Octane, and Onyx. It was edited on an Avid and shot on 35mm film with Digital Filmworks' LUX Laser Recorder.

Collaborator
Edward Quirk

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Tokitama Hustle

Cell, dimensional, and CG animators participated in production of this animated film. It was all done manually, without motion capture, in an epochal attempt to use digital technologies to merge different animation methods. To express the "change in time and space" (one of the production purposes), a ToonShader was used for 2D processing.

The story is unpersuasive: Tokitama-kun leaves the room saying: "See you again in about 300 years." His parents believe him, but only the room ages 300 years.

Director
Koji Morimoto

Producer
Masaaki Taira

Line Producer
Masahiro Kanke

Assistant Director
Aki Iesaka

Animators
Bak Ikeda, Hiroyuki Takagai, Watt, Takahiro Oniki, Shinji Naka, Kazutugu Kosugi

Software Development
Tomoyuki Nezu, Yuji Satoh

Digital Effects
Hironori Ide

Software
Softimage, Houdini, Aftereffects

Hardware
SGI 02, Macintosh

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Tribu

A Machiavellian plan stages the rage of a rhinoceros with the aim of annihilating the powers of the sorcerer...

Directors
Franck Clarenc, Nicolas Darques, Thomas Lecointre

Producer
SUPINFOCOM

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Trophomotion

Jeff Kleiser says, "A lot of people in the industry have been working on editing performance capture and this project allowed Kleiser-Walczak to really push into that territory. For instance, when one Synthespian jumps over a pair of glasses, we were able to use keyframe animation and then transition smoothly into captured motion when he begins his jump to the basket."

Choreographing the impossible...

Two reflective gold basketball trophies come to life and play a game of one-on-one in a commercial commissioned by White Rhino Productions for STARDOX high-performance braces and supports.

Kleiser-Walczak's *Trophomotion* team pre-visualized the entire spot using motion capture and a virtual set. During the table-top shoot, the previsualization and motion capture was rough composited over the live video feed to ensure the accuracy of the backplates. Keyframe character animation was used to breathe life into the trophies' performances.

The artists at Kleiser-Walczak have been design partners in development of Alias|Wavefront's Maya software package. The *Trophomotion* characters were modeled in Artisan, a component of Maya that allows artists to sculpt forms intuitively, using tools similar to those used by traditional sculptors. Maya was also used for 3D modeling of CG environments, animation, and lighting. A new scripting language called MEL or Maya Embedded Language was used to blend keyframe animation with performance-capture data. Compositing was executed with Maya Composer. The Alias|Wavefront software was used on SGI Octane and O2 workstations. Final rendering utilized the Kleiser-Walczak render farm, composed of multiple SGI Origin 2000 servers.

Kleiser-Walczak Crew

Co-Directors
Jeff Kleiser, Diana Walczak

Executive Producer
Wendy Gipp

Line Producer Live Action
Sue Tiezzi

Line Producer CG
Patrick Mooney

Visual Effects Supervisor
Frank Vitz

Art Director
Kent Mikalsen

Production Manager
Tom Hendrickson

Production Coordinator
Molly Windover

Animation Supervisor
Jeff Lew

Lighting Supervisors
Scott Palleiko, Jerry Brown

CG Supervisor
Derald Hunt

Technical Supervisor
Daniel Roizman

Animators
Michael Clausen, Wayn Goodman, Chris Swing

Compositor
Ray Haleblian

Motion Capture Specialist
Dean Wormell

Director of Photography
Buddy Squires

Gaffer
Ned Halleck

Camera Assistant
Mark Hirshfeld

White Rhino Team

Creative Director/Producer
Dan Greenwald

Co-Producer
Tom Ryder

Copywriters
Jim Call, Peter Pappas

Music
Sound Techniques, Inc.

Voice Over
John Laurenti

Tru-Fit Team

President
Louis Caprio

Marketing Director
Al Petrilli

Worldwide Marketing Director
Andy Childs

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Turtle Trouble

A humorous struggle between a man's desire for sleep and his turtle's love for music. Produced using Photoshop, Maya, and Composer on SGI workstations.

Director/Producer
Josh Nizzi

Faculty Supervisor
Donna Cox

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Twinkle, Twinkle, Shooting Star

Mischievous stars spread throughout the town, blow the star pipe to create a skyful of twinklers, and disappear in the morning. This work is a high-definition television jingle created with 3Dequalizer for perspective matching, Softimage3D for 3DCG, and Flame for compositing and paint-like effects.

Directors
Yasuhiro Yamaguchi, Kumiko Hosaka, Takaaki Matsubara

Producer
Aki Tamada

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Un Temps Pour Elle

A seaside bathed in sunlight, a young woman in the light. Time seems to be hanging on the shutter of a movie camera.

Director
Erwin Charrier

Producer
SUPINFOCOM

Software/Hardware
PC, Avid, 3DS Max, Photoshop, After Effects

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Under Construction

In this animation, heavy construction equipment is a metaphor for human life. The machines' movements and textures express each human being's lifestyle and personality.

Music
Charles Noel

Software
Houdini, RenderMan

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Vision

In this fifth CGI submission to the annual SIGGRAPH conference, the animation focuses on original designs developed over the past year.

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The Vortex

Mind-altering digital visuals are seamlessly integrated with exotica electronica music in an attempt to dissolve the boundaries between computer animation and electronic music. Examining concepts that originate beyond normal human consciousness, *The Vortex* explores the connection between humanity and the infinite, between what we understand and what we could not know.

Software
Synae

Hardware
PC

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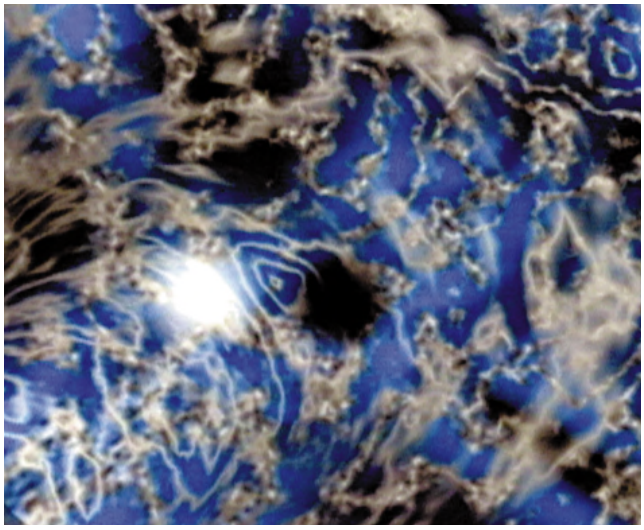
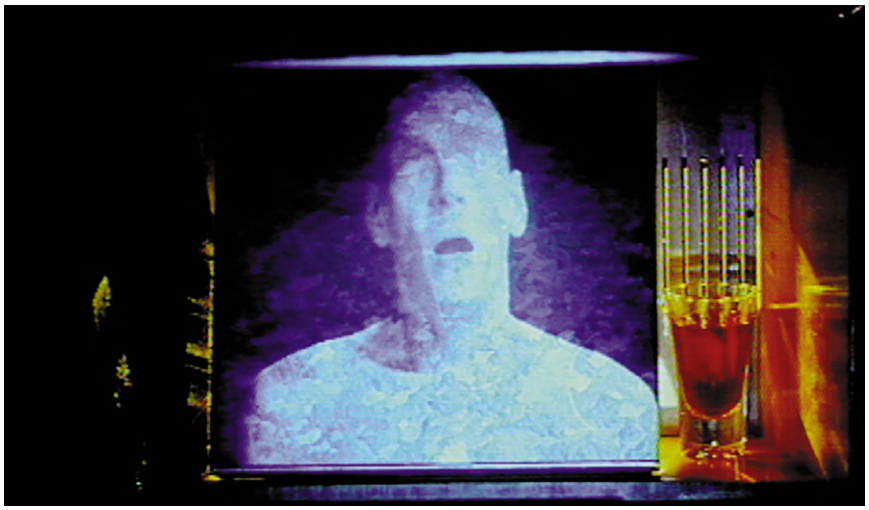


Wanted

This animation is based on the archival materials of the Uppsala Institute for racial biology in Sweden, a department which was to be closed down in the 1960s. Today, in this same building, researchers are manipulating genetic material by dissecting DNA.

WANTED deals with human classification based on outward appearance. Does modern genetic manipulation justify the previous century's racial research?



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Performer
Ari Numminen

Cinematography
Pentti Keskimaki

Video Editing
Raimo Uunila

Sound Track
Antti Hytti, Jone Takamaki, EPA Tamminen

Funded by Petri Jokiranta, Suomen Elokuvasaatio, Ilppo Pohjola, AVEK

In Co-operation
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What Dreams May Come: The Painted World Sequence

For *What Dreams May Come*, 8.5 minutes of live-action photography were transformed into moving imagery in the style of 19th-century painters such as Casper David Friedrich and Claude Monet. Through unique, proprietary machine-vision-analysis software; 3D reconstruction techniques; existing computer graphic technologies, and digital compositing packages, new and traditional techniques were combined into a hybrid technology. The photograpy was digitally deconstructed to create new spatial, temporal, textural, and chromatic relationships that blend 19th-century painting with 21st-century technology.

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Polygram Filmed Entertainment, Inc.
Interscope Communications
Metafilmics

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Painted World Visual Effects Line Producer
Donna Langston

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Nicholas Brooks

Software Creator
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3D Supervisor
Mike Schmidtt, Giant Killer Robots

Software Co-Creator
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Peter G. Travers, Shadowcaster

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Lead Compositors
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Barney "XX" Robson
J.D. Cowles
Tim Crosbie, D-Film

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Marc Toscano
Talmage Watson

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Gerard Benjamin Pierre
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Nick Phillips, Lunarfish
Sarma Banjuri
Dan Klem

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Tim Clark, Pulse Imaging
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Jarmilla Sefloya

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Software Research/Development
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Ariane Veronneau
Robert Minsk, Shadowcaster
Jules Blumenthal
Chek Lim

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Anthony Mark Vivirito

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Greg Shimp

Production Office Coordinator
Jennifer Hannigan

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Tape Operators
Phillip Reed
Deborah Thomas
Todd Gill

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Additional Matte Paintings by Syd Dutton, Bill Taylor, A.S.C., Illusion Arts Inc.

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Whirlygig

A greedy little boy becomes enthralled by the beauty of a whirlygig. He wants to own it, unbeknownst to the boy, the whirlygig is actually a lure.

Director
Jason Wen

Producer
Ringling School of Art and Design

Software
Alias PowerAnimator 8.5, Adobe Photoshop 5.0, Adobe AfterEffects 4.0, Adobe Premiere 4.2

Hardware
02 SGI workstation, Pentium PC

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Why Cows Go Moon

For many years now, people have believed that when cows make noise they say "Moo." However, this is just not so. Why would cows say "Moo?" It isn't even a word! What cows really say is "Moo...n," and the reason is quite simple. As everyone knows, cows have some weird obsession with trying to get to the moon. Some think they want to jump, but that's ludicrous. Who can jump that high? Cows want to simply get to the moon. Of course, no one knows why. It's just what they do. Since the dawn of time, in secret so we humans wouldn't know, cows have been trying to get to the moon.

Each chapter in this classically narrated CG animation for kids and spoof on the famous Mother Goose fairytale is depicted through stage props that enter and exit the screen.

Alias|Wavefront Maya 1.5 was used for animation, lighting, and textures. Alias|Wavefront Composer 5.0 was used for post-production glows and compositing of foreground, middle-ground, background, and shadow layers. ZapIt 2.0 was used for SGI-to-video transfers.

Director
Andrew B. Welihozkiy

Producer
Ringling School of Art and Design

Original Idea
Karl Holbert

Narrator
Brian Edwards

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Wild Card

The lonely Queen of Hearts searches for a special suitor who can win her hand. Eventually, she finds happiness in something she previously discarded.

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Director/Producer/Writer/Animator
Van Phan

Voice Talent
Robert Silverstone

Sound
Shawn Kerkhoff, Heather Holbrook, Patricio Ginelsa, Jr.

Faculty Advisors
Mar Elepaño, Christine Panushka, Vibeke Sorenson, Richard Weinberg

Software
Maya, Alias PowerAnimator, 3D StudioPaint, Composer

Hardware
Silicon Graphics O2

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Wild Wild West

ILM's computer graphics team created an 80-foot-high mechanical tarantula that spits explosive fireballs to lay waste to an entire Wild West town and gave the villain of the movie a mechanical lower body with four computer-generated spider-like metal legs. Dynamic simulations of steam, smoke, cables, and dust were developed for the tarantula, which was piloted by both real actors and computer graphic humans. Backgrounds were created at ILM from location photography, digital matte paintings, bluescreen, and miniature photography.

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ILM Visual Effects Producer
Jacqueline Lopez

Animation Supervisor
Danny Gordon Taylor

Visual Effects Associate Supervisor
Pablo Helman

Visual Effects Co-Supervisor
Edward Hirsh

Visual Effects Associate Producer
Vicki Engel

Visual Effects Art Director
Alex Jaeger

Computer Graphics Supervisor
Steve Braggs

CG Sequence Supervisors
Hayden Landis, Henry Preston, John Helms

Lead R&D Technical Director
Craig Hammack

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Jeff Doran

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Digital Timing Supervisor
Kenneth Smith

Visual Effects Editor
Michael Gleason

Visual Effects Coordinators
Jeanmarie King, Daniel Brimer, C. John Benson

Digital Model Supervisor
Simon Cheung

3D Matchmove Supervisor
Michael Halsted

3D Matchmove Artists
Lanny Cermak, Wendy Hendrickson Ellis, Dani Morrow, John Whisnant

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Heidi Zabit

Lead Digital Paint Artist
Patrick Jarvis

Digital Paint and Roto Artists
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Lead Tarantula Viewpaint Artist
Bridget Goodman

Viewpaint Artists
Tony Summers, Elbert Yen

Digital Matte Artists
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Joshua Pines

Film Scanner Operators
Mike Ellis, Todd Mitchell

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James Lim

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Visual Effects Director of Photography
Kim Marks

Key Grip
William Barr

Grips
Joe Fulmer, Dan Michalske, Steve Collins

Practical Effects Supervisor
Geoff Heron

Effects Technicians
Dave Heron, Rob Clot, Frank Tarantino

Supervising Model Makers
Lorne Peterson, Michael Lynch

Model Makers
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