ELECTRONIC ART AND ANIMATION CATALOG

COMPUTER GRAPHICS ANNUAL CONFERENCE SERIES, 2003
A PUBLICATION OF ACM SIGGRAPH

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SIGGRAPH 2003
SAN DIEGO

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SIGGRAPH 2003
SAN DIEGO

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The Art Gallery celebrates 30 years of annual SIGGRAPH conferences with CG03: The Art of SIGGRAPH 2003. Returning to its roots, the gallery emphasizes prints, painting, sculpture, animation, and video that have a digital component in their creation.

CG03 is both a curated and juried exhibition presenting a visual force both driven by and reflective of the postmodern mosaic. Exceptional examples of state-of-the-art computer art and design selected by a group of distinguished professionals from all areas of the art community are integrated throughout the conference and in the immediate San Diego community, allowing for a greater focus on art as part of the overall media matrix. In this way, artists' ideas, thoughts, and truths, reflecting the layered, non-liner, pluralistic nature of our times, are presented to a wider audience that can view the art in a totally different, inclusive context that emphasizes art's non-isolated global voice. The works are international in scope, representing the diversity of interests in both theme and technique of the current artistic community yet exhibiting common visual threads: an interest in visual perception, the penetration of the Cartesian grid, and a commitment to personal artistic vision.

Following this introduction are six essays by computer graphics professionals who are involved in this year's exhibition. These artists, art historians, authors, and curators, who have been involved in the field since the 1970s, give their perspective on the current integration of visual arts and the computer.

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Otis College of Art & Design
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In the beginning(s) was the digital image.

WHY DIGITAL PRINTS MATTER

It has been established that "computer art" started approximately in 1950 with Ben Laposky's oscilloscope images, which he generated with analog electronics and then recorded onto high-speed film. This event occurred in the wake of the then-recent developments of the first electronic digital computers: a machine built by John Atanasoff and Clifford Berry in 1941 and then the well known Electronic Numerical Integrator and Computer (ENIAC),the first major general-purpose computer, introduced in 1946. Completed in 1951, the Whirlwind Computer was the very first to be equipped with a (vector scope) video display monitor. A "bouncing ball" animation was actually produced to demo this feature.

Taking Laposky's work as a starting point, this art form is about 53 years old. The phenomenal computer-based art movement has now come to be popularly identified as digital art. The current mainstream incarnation called new media is in fact a subset of digital art.

It is important to recall that a lot of key artwork was produced in the formative stages of this movement. That is to say, works created during a timeframe spanning up to 26 years before the Apple II was introduced, 30 years before the first IBM PC, 32 years before the adoptation of the TCP/IP protocol for ARPANET, at least 38 years before the development of HTML, 42 years before the first graphical web browser (Mosaic, 1993), and 44 years before the DVD was announced as an industry standard. This is a very long time in computer years.

In the last decade, I have seen a large emphasis on the fact that new media use digital technologies as a platform for interactive engagement with viewers – viewers become participants, in a sense. Perhaps this is the contemporary embodiment of Marcel Duchamp's notion that the viewer completes a work of art. Fair enough. While this is quite exciting and important (that is the creation of tech-laced phenomenological tableaux or something "post-object" and process-based), I would submit that this is not the only contemporary (digital) art that matters.

It is important to note that digital print work, for the most part, is in fact created in a dynamic time-based interactive software-hardware environment. A profound cybernetic interactive engagement does take place toward the completion of a work, but in this case, the artist "straps it on." It's somewhat analogous to the contrast between browser-side and server-side programming in modern web-site architecture. It's a technological intervention with blood-robot wetware and body kinesthetic processes, at some point along the interface or workflow. It is digital. Digital as we mean it today. One hundred years from now, it may mean the same, but it most likely will connote something quite different.

Even if the software of choice is off-the-shelf, it functions to adapt and articulate the general-purpose hardware component of the art-making tool in use (or perhaps the term should be instrument, as in musical instrument), so that the artist can make art with it. To take the musical metaphor further, an off-the-shelf "tool" like the trumpet did not limit the evolutionary expanse of the jazz idiom as can be heard in its development through the work of Louis Armstrong and forward to Miles Davis. Of course, Miles did bring electronics into the equation after a while, but, hey, some artists love technology.

It may be obvious, but let me clarify what digital print work I'm talking about. I'm not including output sourced from digitized traditional media like painting, drawing, or film-based photography in an attempt to reproduce the original. I am referring to work that utilizes digital-imaging technologies in a way that is intrinsically bonded with its content. This is most easily seen in work that is comprised totally or partially of purely computer-generated (virtual or synthetic) forms. Certainly, algorithmically generated prints fall into this category. Additionally, I include work born of a digital matrix, such that the final look of it is something that could not or would not (in the practical sense) be produced with existing traditional media tools.

Getting back to the first 43 years of digital art, what form did all those early artifacts take in those years? Along with animation and some screen-based imagery, a fair amount of it was hardcopy (digital prints of various types). These were at first photographed off the CRT and then later plotted on to microfilm and then on to paper.

Who were these early digital print artists? Let's take a moment to highlight some of them in rough chronological order. First, there was the aforementioned Ben Laposky. From 1953 to 1956, Herbert Franke also experimented with oscilloscope imagery, and then later, in the very early 1960s, he created monochrome computer graphics. Georg Nees' plotter piece, called "Cubic Disarray" (1968), remains a poetically elegant computer graphic rendering of order and chaos.

Michael Noll's algorithmic simulation of Mondrian's painting called "Composition with Lines" was quite brilliant (1965). At Bell Labs in New Jersey, Leon Harmon and Kenneth Knowlton produced their famous "Studies in Perception" series (1966-67). They invented the scan technology to do it and then created these digital images, which were output in a curious array of typo-pictography that corresponded to the originals' levels of gray. Lillian Schwartz also collaborated with Knowlton at Bell Labs around this time. One of the haunting and expressive portraits they plotted was reproduced in Jasia Reichardt's 1971 book called *The Computer in Art*.

Charles Csuri's "Leonardo Da Vinci" inspired linear interpolations, and a piece called "Sine Curve Man" (1966-69) manifested a fluid and subtle intuition. David Em's work in the late 1970s, using software tools built at the Jet Propulsion Laboratory in Pasadena, has held up incredibly well. Some of these images could be classified as late-20th-century masterworks. Manfred Mohr (working with the computer since the 1960s) and later Roman Verostko (in the 1980s) are key exponents of algorithmic art. Their still images are created by graphics programming. Yoshiyuke Abe (in the 1990s) is a contemporary practioner in this genre, writing his own code and working in a color palette that is almost extraterrestrial in its electronica hyperbole.

Creating imagery with high-level 3D modeling software are artists like Yoichiro Kawaguichi (starting in the 1980s) and William Latham (early 1990s). They have both produced images of enigmatic, otherworldly biomorphics that show a direct correlation to their riveting animation work. Rebecca Allen's famous flat-shaded heads of the band Kraftwork are classic images from about 1985-86. Tensegrity sculptor Kenneth Snelson's lesser-known Wavefront 3D images (1988-89), output as digital photographs, comprise a body of work that is multi-valent in content as well as strikingly beautiful. Char Davies' (1989-93) pre-Osmose digital print work, output in various ways including as large-scale photographs ,are poignant, resonant, and dare I say it, almost immersive. What all these artists have in common is that they can all be credited for generating some of the most significant still images of all time.

Having said all that, where is this art? Where are all these artifacts? I sure would love to go to my local art museum and see a collection of this work on "permanent" display. And I'd like to see these pioneering artists get recognized in the art marketplace as well. (Too few, so far, have gotten enough play, so to speak.)

I am pleased to report that recent steps toward this goal have been made. For instance, a virtual digital art museum (www.dam.org), features excellent coverage of many of the computer art pioneers. A Chelsea, New York gallery called Bitforms (www.bitforms.com) features digital art exclusively and possesses a curatorial scope that includes digital-print artists such as Barbara Nessim and Manfred Mohr as well as the work of many brilliant young new-media artists. Finally, it would be important to acknowledge the New York Digital Salon and the annual SIGGRAPH Art Gallery for their roles in presenting a balanced sampling of digital art over the years.

In addition to purveying the work of the pioneers and the new-media stars, let's hope that the best in contemporary digital print work is recognized and fostered by the art world and presented to today's audiences and collectors. Credit where credit is due, as they say, all the while embracing the notion that it is more important to be timeless than timely.

Victor Acevedo is an artist, best known for his digital work. He attended Art Center College of Design in Pasadena, and he is now teaching in the department of MFA computer art, School of Visual Arts. In 1984, after seven years of working in traditional media, Acevedo adopted computer graphics as his primary medium. His digital image called "The Lacemaker" was featured in the ACM SIGGRAPH documentary "The Story of Computer Graphics" (1999). He has shown his work in over 80 exhibitions worldwide, and it has been reproduced in many publications, including *Computer Graphics World*, *Leonardo*, and *The Los Angeles Times* (Valley Edition.) His work has also been featured in several books, including, *Digital Creativity* by Bruce Wands and *Cyberarts: Exploring Art & Technology* by Linda Jacobs. An illustrated article written by Acevedo for the book called *Escher's Legacy: A Centennial Celebration*, edited by Doris Schattschneider and Michele Emmer, was published by Springer/Verlag in January 2003.

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RECOVERING HISTORY:

Critical and Archival Histories of the Computer-Based Arts

During the 1960s, artists first began to get involved with digital computing. By 1968, it was possible for Jasia Reichardt to curate a survey of digital work in the influential Cybernetic Serendipity exhibition held at London's Institute of Contemporary Art (ICA). The show went on to tour the United States and Japan, and many young artists were inspired to get involved with computers after seeing it.

The concept of user-friendly applications was still in the future, and, for most artists, using a computer meant learning how to program, which wasn't easy and only appealed to certain types of minds. The resulting work owed much to the traditions of constructivism and the then-popular systems art. A new generation of artists took the computational and generative systems as their primary working methodology.

However, times were changing. Late modernism was replaced by what has become known as post-modernism, which relatively quickly became the dominant critical and curatorial aesthetic. The computer-based work was problematic. It challenged the understanding of the humanities-trained theorists (who, at that point in time, had no exposure whatsoever to computer systems), and the computational work was wrongly identified with technological absolutism and the modernistic emphasis on intrinsic media qualities.

In consequence, many young artists emerging from the new interdisciplinary programs were not able to participate in the mainstream artworld. Their work wasn't exhibited in the prestigious and influential state and private galleries or discussed in the art media. But their prospect wasn't completely bleak. In 1968, after meetings at IFIP in Edinburgh, the Computer Arts Society (CAS) was formed at Event One at the Royal College of Art. In addition to publishing over 50 issues of their bulletin, *PAGE*, CAS also curated several exhibitions and often presented them in unsold spaces at major computer trade shows and conferences. This tradition was "formalised" over a decade later when in 1981 ACM's Special Interest Group on Graphics (SIGGRAPH) augmented their annual conference with an art show co-curated by Darcy Gerbarg and Ray Lauzzana. The annual SIGGRAPH Art Gallery became a major international venue throughout the 1980s and continues to this day.[13] In 1987, Lauzzana went on to found fineArt forum (fAf) as an online bulletin board dedicated to the electronic arts.[9] Now under the editorship of Australian hypermedia writer Linda Carroli, it still appears monthly as both an email digest and a web 'zine. A complete 15-year archive is available on CD.

Another essential resource was founded back in 1968 by the American artist/engineer Frank Malina. The journal *Leonardo* remains the principal scholarly publication that addresses the convergence of arts, science, and technology. With a move to MIT Press in the early 1990s, it was able to launch its own book imprint and online publication: Leonardo Electronic Almanac or LEA.[11]

In 1979, the annual Ars Electronica festival began in Linz, Austria,[12] and then in 1988 the Inter-Society for the Electronic Arts (ISEA) was formed in the Netherlands.[10] These and other resources and opportunities enabled the digital arts and their makers to survive and flourish albeit in a marginalised and often maligned form. We became an international "salon des refuses!"

Now postmodernism itself is on the wane, and,sadly, many of the pioneers who were involved in the digital and electronic arts have died. There's a growing awareness that if this period isn't documented and archived soon, it runs the risk of being permanently forgotten. A huge chunk of art history will have been lost forever. A number of international initiatives have sprung up to ensure that this doesn't happen.

I am associated with CACHe (Computer Arts, Contexts, Histories, etc.).[1] Funded by the British Arts and Humanities Board (AHRB), the CACHe project is based in the department of history of art, film, and visual media at Birkbeck College, University of London. It's a three-year program that aims to archive, document, and create both historical and critical contexts for the computer arts in the UK from their origins to around 1980 when the "user-friendly" systems began to appear. The word "arts" is used in its plural sense, and we intend to include the visual and performing arts, literature, etc.

Stephen Jones' project is called: "Synthetics: Towards a History of Computer Art in Australia."[2] It covers development and use of the electronically generated image in Australia from its first appearance in computing to its subsequent use in video, film, and media art. Jones' intention is to uncover the interactions and streams of influence between people working in hardware and software technological developments and artists working in the many areas of image production that were enabled by these technologies.

The Paris-based Leonardo/Olats : Pionniers & Précurseurs (Pioneers & Pathbreakers) project is managed by Annick Bureaud.[3] It aims to establish reliable, selected, online documentation about the artists of the 20th century whose works and thoughts have been seminal for techno-science related art. The project is being carried out through a collaborative working group of art historians, scholars, and researchers. So far, the project has been mainly done in French, although translations into English are under consideration.

Sue Gollifer of the University of Brighton is undertaking a project to create a Digital Archive of ISEA.[14] It's another project being supported by the UK's Arts and Humanities Research Board. The aim of the project is to catalogue and preserve an educational electronic archive of the International Symposium of Electronic Art - Conference and Exhibition 1988 - 2002. These will include the conference proceedings, catalogues, and CD-ROMs, and work from the accompanying exhibitions and performances.

In Germany, the computer-arts pioneer Frieder Nake is creating "compArt - a structured space for computer art."[5] He describes it as a "hypermedium on the history of computer art." The project is currently focusing on the early history, from 1965 to 1980, but it will eventually include later periods. At present, it's in German, but translations are planned.

Also in Germany, the historian and theorist Oliver Grau, author of *VIRTUAL ART - From Illusion to Immersion* has put a critical database on his web site.[6] The Daniel Langlois Foundation for Art, Science and Technology operates a Centre for Research and Documentation (CR+D) that aims to document history, artworks, and practices associated with electronic, digital media arts and make this information available to researchers in an innovative manner.[7]

The Digital Art Museum (DAM) is another project that has received funding from the UK's Arts and Humanities Research Board.[8] As the name implies, it's a virtual museum of pioneers and practitioners. It's also an interesting collaboration between an academic institution, Metropolitan University, and the gallerist Wolfgang Lieser. Lieser comments that all this academic and philanthropic

research will establish a new legitimacy for the computer-based arts. In response, the work will become collectable, demand for it will increase, and sales will improve.

Now that's something most practitioners will be pleased to hear about!

Paul Brown, artist and writer, is a visiting fellow in the Department of History of Art, Film and Visual Media, Birkbeck College, University of London.

ADDITIONAL INFORMATION

1. CACHe - Computer Arts, Contexts, Histories, etc., www.bbk.ac.uk/hafvm/cache/, info@cache.bbk.ac.uk

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HISTORY OF COMPUTER GRAPHICS AND ART: CALL FOR PARTICIPATION

The aim of this call for participation is to assemble a database that documents the evolution of computer graphics, art, and thought about art in relation to the progress of technology. The result will be a collection of images and essays created by artists, scientists, and people who have influenced their work that reflects how technical achievements (hardware, software, languages, etc.) have generated new artistic opportunities. The database will demonstrate how computer art and graphics are related to the history of concurrent technical innovations. It will be augmented by artists' web sites and materials that have accumulated in various collections around the world. Eventually, it will become an invaluable ACM SIGGRAPH resource – the first such resouce, because there is currently no single comprehensive resource that describes the influences and inventions in computer graphics and computer art from a historical perspective. The Birds of a Feather gathering at SIGGRAPH 2002 (organized by Anna Ursyn and Anne Morgan Spalter) generated helpful comment and feedback on this project.

Those who feel their work has contributed to the field of computer graphics, art, and thought about art are requested to describe their areas of activity and accomplishments. Since this approach calls for interaction between people representing various fields in the history of innovation, we request participation from anybody involved in the progress of these fields, from software and hardware developers to scientists and artists. Being a part of this project may be interesting both on a personal level and a community level, because it involves a great potential for new approaches in teaching and provides materials for visual learning. It would be greatly appreciated if you could forward this URL for the Call for Participation and release form to anyone you feel could contribute to this project:

www.siggraph.org/education/cgHistory/history.html

Michael Masucci
Artistic Director, EZTV
www.eztvmedia.com

IS THE AGE OF EXPERTISE OVER?

As I read journalists' reports about the decline in confidence in many financial institutions, the troubles in modern education, and the failure of diplomacy to solve international problems, I am faced with the question: Is the age of expertise over?

The 30th anniversary of the SIGGRAPH conference celebrates a community that is diverse in esthetic design, technological application, and philosophical assertion. Yet, outside of this community, I am surprised to still find experts questioning the magnitude of influence that digital media already exert. Overuse of such words as "convergence" and "divergence" has not diluted the potency of their meanings, for both are actually operating in tandem. An ongoing question remains: Are digital media simply adopting the esthetic traditions of previous art forms (merely replacing one type of paintbrush or camera for another), or do digital media, by nature of the fact of their differences, demand a new set of creative objectives? Although there has always been an inter-relationship between technologist and artist, it has never been so dramatically apparent as today. Interconnectivity, made possible through digital media, creates a type of art that, whether printed onto paper, or coped to disc, or remaining fully interactive within the digital domain, can all be distributed in ways that no previous medium has ever enjoyed. This simple fact suggests that digital media be thought of as different from the "traditional media" that inform them. Although they are inevitably influenced by the past, it is not merely an extension of painting or even experimental filmmaking. Digital technology is not "just another tool" for the artist to use, for its potential effect on the way that experiences are shared has profound international implications. Of course, those same elements that have been used in great art throughout the ages still remain: composition, color, texture, mood, style, and story. Perhaps, in some ways, the art of experiencing is being more affected than the art of creating?

Those who perceive themselves as experts expect attention from an audience that may no longer recognize their authority. The experts of the past are not necessarily pre-ordained to determine our future. They can continue to serve a vital purpose in the roles they originally were involved in, but might never become primary voices in newer manifestations. The developers of the railroads did not invent the airplane. Telegraph producers did not invent the telephone. Classical musicians did not invent jazz. More recently, filmmakers did not invent television, and television did not invent the web. Their "brand names" did not convince people to ignore the newer possibilities. Past expertise did not empower a vision in re-inventing their futures. Although economically viable in the current business climate, people now debate whether movie theaters, bookstores, or even museums will be successful in the future digital world. I continue to hope that they are, but I know that they all must continue to prove their evolving value in the future marketplace of ideas. Exhibition spaces are as much a reflection of the time in which they were created as they are institutions of ongoing relevance. Museums continue to serve as an excellent way to experience "object-based art," but they may never be the best way to explore web-based art. Creative communities such as Hollywood must learn from this and find ways to re-invent themselves continuously. In effect, digital media relate to Hollywood as rock 'n' roll relates to the big-band era. Digital media are not its subordinate, for they may well become its replacement.

When the electric guitar was invented, it was seen by its developers (such as the great musician/inventor Les Paul) as a way of allowing the acoustically challenged guitar to survive. Through electronic amplification, guitars could suddenly be heard with the much louder horn sections that had become the mainstay of popular western music. Instead of simply finding its place in the big bands, the electric guitar competed against them and, ultimately, forced them out of business. It not only competed technologically, but also socio-politically, rebelling against the current popular tastes and creating a new, even-more-popular esthetic. The inventors of these instruments had not foreseen that adopters of the electric guitar would create an entirely new category of popular music and in doing so have profound worldwide sociological effects. Some nostalgic individuals continually prophesied the "return of the big bands," and, other than a few short-lived attempts, production of music continued to move ever forward and become ever more electronic.

Some believe that entirely new forms of digital creativity are already in evidence around the world, and may render traditional entertainment models obsolete.

Mobile communications may well be the electric guitar of the early 21st century, and the emerging mobile digital culture may be its rock 'n' roll. Non-location-dependent, and self-invented by its user base, this culture is creating a new language system that combines graphics, text, and sound into a meta-language that transcends borders and develops without the oversight of such "gatekeepers" as investors, publishers, distributors, or curators. If this is not truly an art form, then I don't know what is. Nations such as Finland have not only pioneered the technological devices that enable such experiences, but they are also contemplating the sociological implications of such a world, recognizing fully that they will be observers as well as producers and participants. At any time, unforeseen developments may toss the best predictions into the discarded intellectual trash heap of history.

We all laugh at the early 20th century's failed predictions of life in the 1980s: the flying cars, the moving sidewalks, the end to poverty, disease, and war. We may even laugh at the more recent predictions of a little over a decade ago, when "experts" announced with confidence the arrival by the early 1990s of a widely available home-entertainment medium produced around "virtual reality." These over-confident experts failed not only in understanding the essential current technological shortcomings of their predictions, but also often failed to predict the actual "killer apps" of the 1990s: the world wide web, mobile communications, and digital video. Although experimentation must be encouraged, intellectual accountability as to the economic viability and engineering feasibility of such predictions must become an essential part of the media theory process.

Now that several years have passed since the hype of the dot-com hysteria and its resulting implosion, we must continue to put into perspective the lessons we can learn from that unique period of recent history. Many of the "mavericks," "gurus," "visionaries," and other self-anointed egomaniacs have returned to obscurity. Digital video and mobile communications have also been hyped in a similar fashion. Those of us who rely on these tools for our economic as well as creative survival must seek ways to separate the over-abundance of rhetoric and unrealistic enthusiasm from the necessary information, through which we can navigate our work.

Digital literacy is teaching us that the Age of Expertise may well be over. There is simply too much information for anyone to have more than an over-specialized knowledge base and an under-generalized understanding of the human condition. This puts the value of their expertise into question. Despite our newfound

connectivity, contemporary society continues to become more fragmented and less homogeneous. Digital technology is doing far more than introducing improved tools to a more media-democratized planet, for it is inventing metaphors for widespread use of a personalized environment by which legacy, influence, and identification can be preserved. How can we fully appreciate these phenomena? Thirty years of SIGGRAPH conferences may be a clue. The need for an ongoing, interactive, and pluralistically authored history of digital media seems like the promise as well as the solution to the ongoing problems of exclusion and misinformation. A history authored by witnesses and participants, rather than "experts." A history that is constantly updated and modified as previously forgotten or under-represented information is integrated. Hard-copy applications such as books or videos are not ideal formats for such a project, which would, by necessity, be interactive and probably web-based. A history that would also include the environment by which the work was integrated into the culture's perception, the art spaces, festivals, publications, and other venues that were first brave enough to take seriously that which had yet to be accepted by the standard curatorial perspective (sites such as www.walkerart.org are promising beginnings). We must become informed enough as a society to understand that no one history can ever again be sufficient to explain or critique the efforts of past invention, neither artistic, scientific, nor socio-political. Let digital media producers be among the first to acknowledge this possibility. And rejoice in their lack of expertise. I, for one, delight in knowing that any "expertise" that I may currently have will be short-lived, and that I will continue to be both student of and witness to the collective history that unfolds around me.

Patric Prince
Member, SIGGRAPH 2003 Art Gallery Jury

THE ART OF UNDERSTANDING

Or: A Primer on Why We Study History

Why did a substantial number of submissions to the SIGGRAPH 2003 Art Gallery demonstrate a lack of knowledge of the history of digital art? There is an art to understanding creative invention that involves information as well as experience and personal preference.

In the early decades of digital art, artists had somewhat limited modes of expression because of an incomplete understanding of what computer techniques and applications would do for them. Now it seems some artistic production shows a considerable lack of knowledge of what has gone before.

Previously, one could distinguish between not only what program was used on which type of machine, but also who created a particular work, because of the signature of the machine and of the available commercial instructions. This led to a preference for work made with original programming techniques, because the work can appear to be more innovative. Program or perish became the call of the digital avant garde in the 1980s, similar to the intellectual battles fought in the 19th century between artists who were colorists versus the classicists, (Ingres vs. Delacroix). Artists who do not have an interest in programming select other significant paths to fulfillment.

An important aspect of this discussion is that to be able to contribute to the genre of digital art, we must remember its algorithmic foundations. Artists who treat the computer as "just another tool" can miss the most innovative features of the experience. The search for visual intelligence is a critical aspect of this genre. It is the quality of art ideas and of the realization of them that makes digital art of interest to us in our age.[1] Those practitioners of digital production who are only concerned about the techniques in and of themselves are not necessarily creating art. The dispute about the making of "pretty pictures" as art is old and tired in the Western tradition. The making of pretty pictures does not need nor relate to computer applications and techniques. The singular advantage that is brought to this ubiquitous form by computer processes is ease of use. It is easy to make any picture using modern digital equipment; it is not easy to make good art. Substitution of technique for content or intent is a banal exercise. A significant use of the computer allied to a good art idea, the content, is a demanding task.

The medium selected for expression of art ideas ought to realize and be appropriate to the specific work of art. The choice of medium is a fundamental part of the work and should not depend upon ease of production. There are still those who believe that integrity in an artwork demands that if it looks like a watercolor it probably should be a watercolor, unless there are compelling reasons otherwise. There will always be exceptions to this and every other canon; art, like life, is always changing. Expression is embedded in the human condition so completely that we all believe that we're art experts Art is knowledge-based like any other discipline ("I don't know anything about math but I know what formulae I like").

In knowing what went before, an artist can express ideas in a singular voice. If an art idea has been explored in the past, should it be copied (plagiarized) or reinterpreted? Pioneer computer artist Paul Brown has hypothesized that it takes at least 50 years of practice before interesting, valid media are produced with any new technique.[2] Early computer artists (those working from the 1960s to the 1970s) used interactivity, randomness, algorithmic expression, dimensionality, transformations, motion, heuristic techniques, and other inventive aspects of digital production in their work.[3] These features of digital expression were used to convey art ideas that were part of their time. Here we are 40+ years later in the development of this art, and artists are not only copying what went before, but also the exact style signatures of well-known artists. Future works will involve processes, forms, and art ideas that are still in embryonic stages. By understanding the past, artists and participant viewers can evolve and extend expression.

How significant is the knowledge of the history of digital art, to the artist? Is it being addressed at the university level? Should artists repeat the past or not repeat the past? Is "the new" in creative expression always better or, as some believe, worse? What forms are appropriate for artwork in the 21st century? Need I state the obvious? The profession demands knowledge as well as accomplishment in artistic production.

Stay tuned for the future; if we don't find it, it will find us.

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Anne Morgan Spalter
Brown University

WILL THERE BE "COMPUTER ART" IN 2020?

It is ironic that the more computers infiltrate our daily lives, the more they seem to disappear. Computer-driven technologies like ATMs and email are part of the subconscious landscape of modern life and require no more attention to use than, say, tuning the radio while driving the car. As the science of computer graphics continues to progress, will computer art become a more prominent feature of the art world? Or will it, like the technology it uses, merge, at least in part, with the background of other art materials and methods?

No other art-making technology in history has progressed as rapidly and changed as dramatically as the computer. In the 1970s, only artists associated with large institutions had access to a computer, and using one was no walk on the beach. Less than 20 years later, "personal" computers had arrived in offices, schools, and homes. Today, the cost of a computer and associated peripherals is no different from equipment for any other technically intensive art form, such as video or traditional printmaking. In this same timespan, computer art courses and new-media concentrations have popped up in virtually every art school and many liberal arts colleges and universities around the United States. This very prevalence is one of the factors that are shifting our perceptions of the identity of computer art.

PREDICTIONS
Two-dimensional computer prints: As traditional printmaking courses begin to use computers in image creation and output, the separation between "computer" printmaking and "traditional" printmaking will disappear. The skills needed to use basic graphics software such as Adobe Photoshop will simply be assumed, or may be taught as part of introductory art courses. (Incredibly, when I first began teaching, I had a whole class session devoted to how to use a mouse.) Already, traditional artists have begun to use Iris and other giclée printers for professional output.

Three-dimnesional computer sculpture: Rapid prototyping devices will become cheaper, following the same trajectory as color printers. As recently as the mid-1980s, it was practically inconceivable to have one's own high-quality color printer. Today you can get one for opening a bank account. The use of rapid prototyping for traditional mold-making will help unite traditional and "new media" approaches to 3D art works.

Animation: Just as in graphic design, animation students already learn computer skills as a matter of course. You have to work hard to see a recent movie in which computer animation has played no role. For many years, companies like Disney and Pixar have looked for employees who have a strong traditional portfolio and high-quality drawing skills, not merely computer skills per se. Instead of being just a new and exciting element in animation, use of the computer is now clearly necessary but not sufficient.

Photography: As prices continue to plummet and quality continues to soar, traditional film cameras will become obsolete collectors' items, and digital photography will be the norm. Photographs have always been retouched for publication, and the computer is a natural extension of the darkroom. Who would have thought that only 50 years after succeeding in the struggle to have photography accepted by the art world, it may already be transforming into something quite different from its original incarnation?

Once enough painters, printmakers, photographers, and animators embrace computer graphics, stalwart supporters of computer art will have a new task on their hands. Instead of trying to get computer art seen and understood by the traditional art world, we will have to make "traditional" artists aware that they are now just like us – making art using the computer. While they may accept the computer in its low-cost and easy-to-use form into their studios, we must be sure that they understand that the ramifications of the "universal machine" remain enormous. Ignoring the issues of computer-generated and computer-modified visual imagery will not decrease their impact, and artists and critics still need education in this vital area.

What aspects, if any, of what we have come to think of as "computer art" will survive? A distinction is sometimes made between works that an artist has programmed (as in all early computer art work and current work done by groups such as the algorists) and works created with the tools in an off-the-shelf application. But past algorithmically created art works (not using the computer but done according to a strict "recipe"), such as those produced by the Dadaists or the Surrealists, certainly have been fully integrated into traditional art history and are not thought of as a separate line of endeavor.

Artists programming today use sophisticated simulations, biological growth patterns, and, perhaps most importantly, new levels of interactivity: web art, interactive installations, robotics, and artificial intelligence may be the chief drivers of a next round of "computer art" that is highly interactive. There is a difference, though, between the printmaking, sculpture, and photographic efforts and those of interactive and more performance-based works. The first are chiefly visual. Although there are certainly important visual elements to most interactive computer pieces, the artistic message often depends more on the interactivity than the images. We may be seeing a shift in the identity of computer art from predominantly visual art to more highly interactive and participatory forms. Although there are historical precedents for many aspects of this work, from Situationist International to performance art, the technology cannot help but call attention to itself, just as it did when first used in static pieces.

Interactive art: As with the more traditional, visual art forms, given time, virtually all artists engaged in creating interactive works will consider the computer a useful tool and incorporate it routinely. In the near future, static 2D and 3D visual computer pieces will seem to relate more to their traditional counterparts than they will to, say, an interactive and AI-based installation experience.

The integration of "computer art" into different aspects of the more traditional analog art canon is not, however, a one-way process in which computer-aided work is simply subsumed. Bringing the computer into the studio only reduces the identity of "computer art," because it shifts the fulcrum of the larger art world. In T.S. Elliot's influential piece "Tradition and the Individual Talent," he says that "what happens when a new work of art is created is something that happens simultaneously to all the works of art which preceded it." As more and more artists work with the computer without calling themselves computer artists or their work computer art, they contribute to the inevitable adjustment and reordering of nothing less than art history.

Will there be computer art in 2020? Yes and no. It will be everywhere, although it may seem to be nowhere. It will be part of a larger art world – not the same art world we have today, but one changed by the impact of a machine that has broadened artistic discourse and enabled fundamentally new tools for human expression.

Anne Morgan Spalter is the author of *The Computer in the Visual Arts* (Addison-Wesley, 1999) and is artist in residence in the computer graphics research group at Brown University.

Bruce Wands
School of Visual Arts
New York Digital Salon
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THE DIGITAL BECOMES CONTEMPORARY

We are at a special and paradoxical moment in the development of digital art. Now that it is finally gaining widespread public and critical attention, digital art is also being quickly absorbed into the world of contemporary art. The next generation of artists and critics will not look at making art with a computer as something extraordinary or unusual. This phenomenon is already quite apparent in galleries in New York and abroad. While galleries like Postmasters and Bitforms specialize in new-media art, numerous other galleries in Chelsea exhibit similar work, but do not make the distinction that it is new-media art. Another growing trend in New York is for artists to display prints along with new media as an integral part of the exhibition. The return to the object is due in part to the recent widespread availability of archival printing methods. Museums are also in the process of refitting to accommodate the next wave of contemporary art. The Museum of Modern Art in New York has closed for two years to update its galleries, and the Stedelijk Museum of Modern Art in Amsterdam is planning a major renovation for 2004. For those of us who have followed the SIGGRAPH Art Gallery for many years, this acceptance of digital art by the contemporary art world is refreshing, but also raises many questions. Digital art has operated outside the art establishment for many years, and this has allowed it to remain relatively free.

Digital art originated as a product of the creative experiments of artists and engineers in the early days of computing. One of the first techniques, using the ASCII character set to make digital prints, was developed by Ken Knowlton and Leon Harman, two early computer-art pioneers at Bell Labs. In 1966, Billy Kluver, along with Robert Rauschenberg, organized a series of events in New York called Experiments in Art and Technology (EAT), in which artists used technology in their creative practice. Exhibitions in the late 1960s, like Cybernetic Serendipity at the ICA in London and The Machine as Seen at the End of the Mechanical Age at the Museum of Modern Art in New York held promise for those pioneers who saw the creative potential of computers.

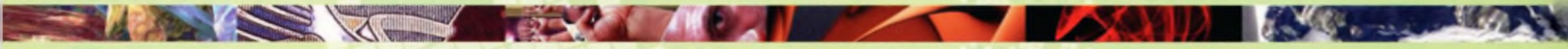
In the early days, mainframe computers were only accessible to engineers, and it was difficult for artists to get access to these machines. During this time, computer art was experiencing the same fate that photography and video art suffered when they first began to develop. There were considerable technical problems, not only from the hardware point of view. The software did not have the sophistication it has today. Archiving was also difficult, because operating systems and software were constantly changing. The real revolution in digital art came in the 1980s, when IBM PCs and Macintosh computers arrived. The development of machines that artists could afford and the creation of paint systems with full color capabilities brought new life to digital art. Artists like Barbara Nessim used output from a Macintosh LaserWriter as foundations for their paintings. Photography was also used to make digital prints. Initially, photos were taken directly off the screen, but later film recorders were developed to get high-resolution photographic images out of the computer. Digital printing methods were still being developed, and archival printing methods have only recently become widespread. In the early 1990s, interactive multimedia and widespread public acceptance of the internet caused the art community, as well as the general public, to focus on net art and interactive installations.

Soon after the all-electronic SIGGRAPH 93 Art Show, the New York Professional Chapter of ACM SIGGRAPH held the first New York Digital Salon at the Art Directors Club. This 50-print exhibition was one of the first digital art exhibitions in New York since the 1960s, and it was favorably received. The New York Digital Salon has since evolved into a venue for international artists that includes all forms of artistic expression created with computers and technology, including prints, installations, sculpture, disk-based media, animation, digital video, web sites, performances, and music.

The last five years have seen a literal explosion in the presence of digital art in galleries and museums. In 2001, the San Francisco Museum of Modern Art exhibited 010101: Art in Technological Times and the Whitney Museum of American Art opened BitStreams and Data Dynamics. The Brooklyn Museum of Art Digital Printmaking exhibition in 2001 traced the history of printmaking, ending with a focus on digital printmaking methods. While the line between digital art and contemporary art is blurring, digital technology has fundamentally changed not only the way art will be created in the future, but also the way it will be perceived, exhibited, and distributed. Technology has blended art and culture worldwide. In the past, schools of art were established by small groups of artists in specific geographic locations. The internet and widespread availability of digital tools have empowered artists everywhere to share their digital work and their ideas about digital art.

The SIGGRAPH 2003 Art Show is returning to its roots with an emphasis on digital prints, sculpture, and the growing impact of digital video and animation. This point of view confirms that we are moving from focusing on the tools to looking through them into the art. While there are still many new technical frontiers to explore with digital art, we are still only at the beginning of an entirely new form of contemporary art. We must remember that its power is based on the art that preceded it, not the technology. The SIGGRAPH 2003 Art Show pays tribute to that history and the future of contemporary art.

Bruce Wands is an artist, writer, and musician. He is also chair of the MFA computer art department and director of computer education at the School of Visual Arts in New York. His department's site (www.sva.edu/mfacad, was named by Yahoo Internet Life as one of the "100 Best Sites of 2002." for Best Original Web Art. "Time Out New York" named him one of the "99 People to Watch in 1999." His book, *Digital Creativity*, was published by John Wiley & Sons, Inc. in 2001, and he is currently writing a book on digital art for Thames & Hudson (UK), to be published in 2004. He was the first musician to perform live over ISDN lines in 1992. He is director of the New York Digital Salon, an international digital art exhibition (www.NYDigitalSalon.org). He has received grants from the National Endowment for the Arts, the Rockefeller Foundation, the New York State Council on the Arts, and the National Endowment for Science, Technology and the Arts (NESTA UK). He served on the New York City ACM SIGGRAPH Board of Directors for 10 years.



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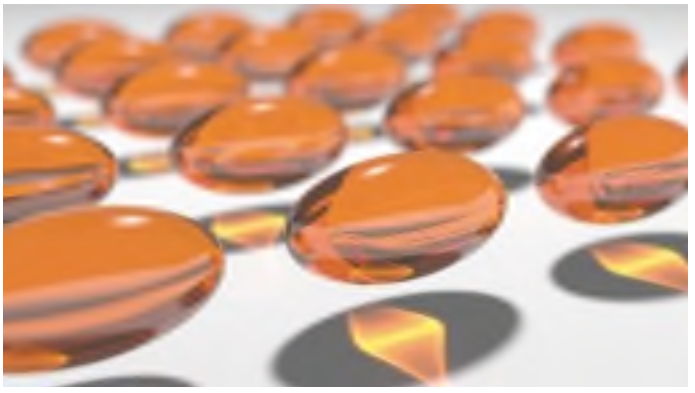
HOWARD ABRAMS

ORANGE, TEST 1: CAUSTICS
48 inches x 27 inches
LightJet print on Fuji Crystal Archive Paper



ORANGE, TEST 2: DEPTH OF FIELD
48 inches x 27 inches
Lightjet print on Fuji Crystal Archive Paper

In the past, large-scale, high-quality, computer-generated art was difficult and expensive to produce. Pricey software, supercomputers, and rare output devices were all needed. Similar to most technologies, as computer-generated art develops, the process becomes cheaper. Open-source software, inexpensive home computers, and online service bureaus have transformed computer-generated art from an elitist hobby to simply a set of cheap tools to create art.

This collection was created using only open-source tools on a home computer and printed on archival-quality photographic paper using an online service bureau. The final result is a large-scale print for less than 100 dollars, including tax and shipping.

The prints presented at SIGGRAPH 2003 focus on creating complex images from simple shapes and colors through photon mapping and other photorealistic processes. The two images taken from the series "Orange Test" are high-resolution versions of test images from an upcoming HDTV animation. Although they are only stills from an animation, they stand on their own when printed at high resolution.

This is most apparent in "Orange Test 1: Caustics," which consists only of an elongated semi-transparent orange sphere, a white plane, and two spotlights. From simplicity, an unimaginably complex image arises. Beautiful yellows emerge from over saturation. Quantization errors in the photon-mapping process yield complex hairline curves that, even at 48 inches x 27 inches, one must be within a few inches of the image to see.

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VICTOR ACEVEDO

NU CYNTHESIS
26.66 inches x 40 inches

DAVIS ACEVEDO
29 inches x 40 inches

The main intent of my print work is to explore the structure of space by re-visioning (photo)graphical data pulled from everyday life. Toward this goal, I build geometric space frames or objects using 3D software and then composite these synthetic structures into the artifactual space of each (photo)graph of interest.

Apart from intuitively generated virtual or cyberspace objects, the use of particular space frames (geometrical matrices – networks of triangulated or semi-spherical polyhedra) and the graphical tension achieved by (digitally) juxtaposing them with photographic mappings of visual data becomes an opportunity to represent spatial-field phenomena in a way that is non-cubical and non-cubist. Moreover, the use of digital imaging tools supports the facile use of photographic realism with its native and varied perspectival embodiment,even as it is subject to a profound digitalic flux of an acutely abstract and metaphorical shape-shifting mixology, if you will.

I am fond if saying: "There is no such thing as empty space." Among other things, "empty" space is filled with atoms and their dynamic interactions. Not only is space not empty, it has shape. In my pictures, I conceptualize space as a field. I render figures and their environments and connect them pictorially because they actually are connected in reality. At the same time, the connective networks or objectifications that I use (I would like to think) articulate the inherent structure of the so called empty space 'tween the figure and ground.

Apart from direct sensorial contact with nature, my key modern and contemporary influences have been the artists Cezanne, Picasso, Salvador Dali, and M.C. Escher; design-scientist-engineer-geometer R. Buckminster Fuller; and East-West scientists-philosophers Fritjof Capra and Ken Wilber.

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JANET ALLINGER

FRANKIE
20 inches x 20 inches

JANICE
20 inches x 20 inches

I was born in Detroit in 1964 and now live in Santa Cruz, California. An artist from day one, I perfected my skills over the years in design by working alongside top designers in the graphic design trade and constantly experimenting with my artistic abilities.

My art consists of paintings digitally rendered on the computer using a combination of drawing and painting software, then outputting on an inkjet plotter. Each digital image is a one-of-a-kind signed artist's proof with limited editions of 250.

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FUMIHIKO ARIGA

BIO SYNERGY
30 inches x 30 inches

My true motivation in creating art is driven by this definition: Art is not what the artist sees, but it is the world of imagination that the artist reveals to his audience. I am interested in creating immersive and responsive art experiences for the viewers. I arrived at digital imaging naturally through a path that has become increasingly surrounded by digital technology. The computer is an instrument for allowing certain images to come forward and others to recede into the barely recognizable forms of dreams. Using the computer as a medium of art allows me to investigate the relationships among layers, dimensions, and elements.

My work in progress undergoes an engineering process that is vital, yet unpredictable. Solid structures are evident in my concepts and the direction of the artwork. However, I find these journeys simply come to conclusions on their own prerogative. The result creates a language that cannot be perceived in the world as we know it. Rather than attempting to speak to audiences through a universal language, I would like to use my works as opportunities to listen as each person takes something different from them.

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ANDREW BAC

HEAR NO EVIL, SEE NO EVIL, SPEAK NO EVIL, XXXX NO EVIL
72 inches x 32 inches x 2 inches

While artists visualize concepts, the works of art are structured by the characteristic nature of various media and materials that artists utilize. The astonishing visualizing power of the computer, on the other hand, has offered new aesthetic opportunities to many artists and designers by providing extensive sets of visual possibilities. It has suggested new notions of how to create, see, understand, and appreciate a work of art.

More than anything, computer technologies allow me to explore the visual concepts as if I can actually interact with each part of the images. Many of my works are the results of countless mixtures and variations of images that are coming from various sources. The technology constantly pushes me to challenge the new ideas and deeper engagements. Most of all, computer graphics technology provides me endless possibilities of regenerating new developments and thus provokes new sets of visual concepts.

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TERESA (TERRY) BAILEY

TEA GYPSY
29 inches x 34 inches

"Tea Gypsy" is the second in a series of paintings I am creating with the thematic subject of tea. It reflects my fascination with anti-illusionism, a technique I studied as a film student in undergraduate school. I intentionally left several of my original sketch lines on the nose, mouth, and elsewhere. And I left portions of the face in a somewhat unfinished state. All to pay homage to this anti-illusionism in art. All to remind viewers that they are looking at a work of art, not a photograph or reality. All to jar viewers into reflecting on the piece rather than simply being absorbed by it.

"Tea Gypsy" is a study in the contrast of traditional art and digital art. I painted the portrait face of my character in traditional-looking techniques of oil, pastel, and ink lines; in the computer, I am able to simulate the look of those traditional media. The remainder of the image is devoted to digital technique. It would not be possible to paint the light-filled stained glass background with any traditional art medium; likewise, the pattern that I painted and overlaid into the drapery and head-scarf is the result of digital tools and techniques, which have no equal in the traditional art tool world.

"Tea Gypsy" is a portrait and a self-portrait. She is a portrait of Barbara Karp, the most remarkable woman I have known: a writer, opera director, and inspiring muse to me. One day Barbara said: "Terry, we have the same green eyes." I shared with her the first print of the painting I made, melding our eyes, the last time I saw Barbara, on the eve of her death. I never told her it was a portrait of both of us, a way for me to capture her and hold her with me for eternity. But I am sure she knew. She was that perceptive and intuitive.

"Tea Gypsy" is about life and emotion. I attempted to paint every emotion I could conjure with my digital brush into her two eyes. All the emotions my friend Barbara and I faced together as we visited and talked during her last months on this planet. Fear, innocence, anger, sadness, joy, awe... My greatest joy now is to see people stand before this painting and discover those emotions in themselves as they gaze at her.

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DAN BALDWIN

ANDY
50 inches x 50 inches

Technology is a dynamic medium to utilize, another brush with which to create, another tool with which to communicate. As new technologies emerge, so do the possibilities of creating works that approach art in a manner never before seen. Constantly reinventing itself, the narrative as an art form is but one example. No matter what their era, storytellers have always used the current technology to teach, inform, express, and entertain.

Narrative painting has always fascinated me; the stories artists have evoked on canvas have captivated me for hours at a time. Often, I have wondered exactly what these stories meant, as if I somehow missed the artist's intent. The result left me to create my own story, based on what I interpreted from the painting. My story depended not on my knowledge of the artist's specific experience, but on my imagination, personal understanding, and memory. My work today builds on these ideas.

The experience is derived from traditional approaches to narrative painting, where visual elements are composed to convey a story. However, the inclusion of a flat, LCD touch screen within the painting allows the static story to transform dynamically. In this piece, the touch screen serves as a television that contains various, often unrelated imagery that influences the narrative of the entire work.

These narrative elements facilitate the viewer's vision and provide the ability to actively alter the story at hand, both personally and publicly. The viewer becomes artist/storyteller, transforming what might be vague to vivid. This idea is reinforced as the viewer interacts with the touch screen. The physical act of moving into the painting, interacting, and moving back to examine the work replicates the process of an artist in the studio.

Ultimately, the success of any narrative art form is the story and how it is conveyed. It is the goal of this work to create an experience, through collaboration and interactivity, where the story evolves into a more personal and meaningful event.

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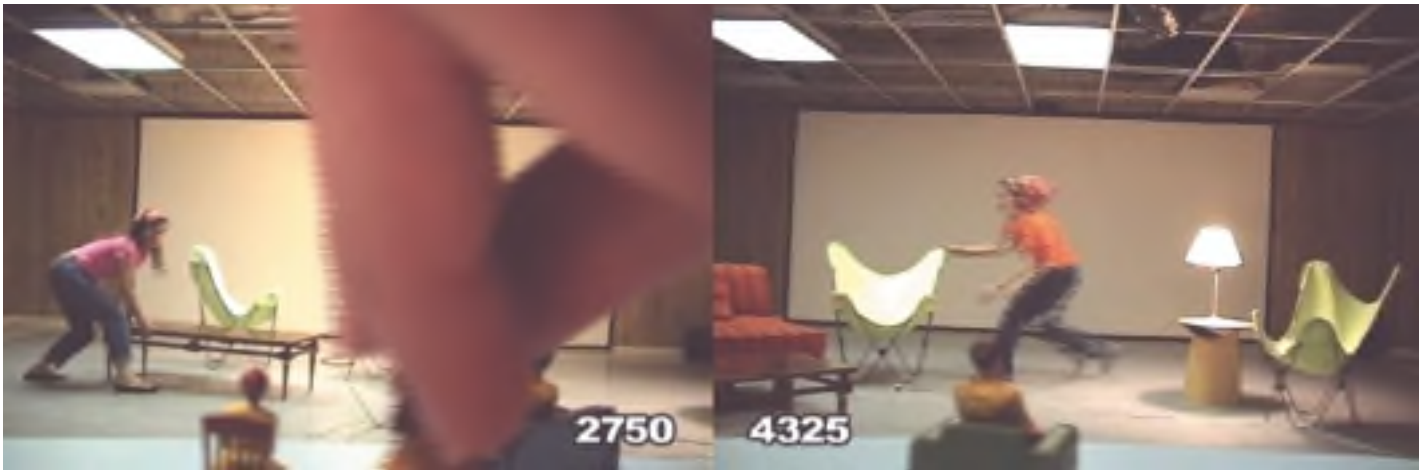

MARIO'S FURNITURE
A Mushkin-Barnet Game

"Mario's Furniture" is an interactive video installation that is played, recorded, and exhibited in the gaming space. Videogame play happens in a hybrid space of both the physical and videographed world, thereby confusing notions of real and virtual as well as viewership and interaction. In the game, players move objects of conflicting human and miniature scales within the camera's frame, while racing against the camera's ceaseless rotation. The players rush to maintain the appearance of unified scale within the gaming space. Here, time and space become mutable in correlation to virtual gaming apparatuses. Within "Mario's Furniture," a new kind of play emerges, one that is heightened and accelerated, allowing infinite malleability of space and time.

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MARC J. BARR

ENTRY 1
30 inches x 12 inches

I've been working with computer technology and industrial types of processes with traditional art methods and materials since the mid 1980s. In this piece, the basic forms were drawn with the aid of a computer and various software applications (Photoshop, Illustrator, and Maya) and then output and used as guides for cutting various-sized clay slabs. The 2D surfaces were derived from photographic images that were digitized, manipulated, and then screen-printed onto the slabs, using a ceramic slip (similar in composition to printers' acrylic inks). The textural or relief surfaces were created with the aid of a laser engraver that uses images for burning into rubber and polymer sheets. These sheets were then pressed into the wet clay slabs.

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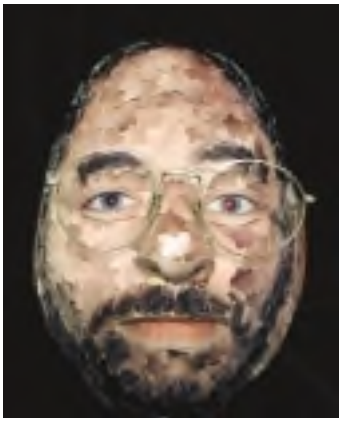
JARED BENDIS

VECTOR BLOCK
8 inches x 10 inches x 1 inch

PIXEL PORTRAIT
11 inches x 14 inches



PIXEL MASK
10 inches x 12 inches x 6 inches

PIXEL MASK
detail

THE DIGITAL ME SERIES

"The Digital Me" series explores my interactions with the digital world on both physical and metaphysical levels. I share my artistic vision using the skills and tools at my disposal; this invariably involves technology.

"Pixel Mask" involves self-expression with a clay mask molded from my face. Using several digital prints, I have reconstructed my head from punched out "pixels,"' which, in this case, are literally "picture elements." Unlike a jigsaw puzzle, where the image is predetermined, my re-creation here is more adventurous. Bits of beard turn into hair; bits of forehead turn into cheek, and in the end, the eyes just stare back at you with some of the spirit but none of the life of the creator.

"Pixel Portrait" is a lithograph that explores technique, the self, and reproduction. I started with a low-resolution digital image of my face, and for each pixel, I placed one drop of touche (a greasy liquid) on the lithography stone. The drop dried, leaving the grease (and the desired gray). The resulting print is a hybrid: the medium is analog; the image is digital. The original digital image took a moment to shoot and can be printed endlessly. The lithograph took hours of painstaking labor to produce, and only eight were printed. Step back. As a whole, the image takes on more character and life than the original digital print. There is only one me, but unlike my images, I am ever changing.

"Vector Block" is hand-cut linoleum that represents the interaction of self and tool. I converted a digital photograph of myself into a vector graphic. To maintain the spirit and integrity of the vector image, I plotted it on an old HP graphics plotter. The plotter was my inspiration as I held the blade in my hand, and the plot guided my cutting. Doing by hand what a machine can do is challenging, yet it can empower the artist in new ways.

Traditionally, the block is used to create prints, and I printed an edition of seven. The prints, however, are secondary; they mirror the image as they mirror my true intention. The block itself is my true representation. I am a tool for creation, a source. Influenced by technology, history, and a desire to disseminate my ideas and ideals, I show myself for all to see.

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RANJIT BHATNAGAR

SENSITIVE RESEARCH
5 inches x 6 inches x 3 inches

I am fascinated by antique scientific instruments. Sometimes, that fascination goes too far, and I am compelled to eviscerate them. "Sensitive Research" is part of a series of pieces combining natural materials with technological artifacts.

The preserved lemon inside "Sensitive Research" spins and strobes in response to various environmental factors, including, most importantly, the settings of the two front-panel knobs, which are quite pleasant to tweak.

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CHIARA BOERI

FAUST FRAGMENTS - PART I AND II
3.3 metres x 3.3 metres

An homage to Johann Wolfgang Goethe and Giorgio Strehler:

When to the moment I shall say,
"Linger awhile! so fair thou art!"....

This double-sided painting on canvas and silk is inspired by Goethe's poem, but especially by the theater staging that Giorgio Strehler, the greatest Italian director, produced in Milano in 1991-92. It was magic and the last major performance he offered before he died in 1997. Theater is an essential part of my life as an artist, and I had the chance to work with Strehler. Theater is also a special art that only lasts during the time it is presented. No recordings will ever reproduce its peculiar atmosphere. I know this well, since recently Strehler's Piccolo Teatro asked me to make a special edition of Faust from their video archives, reducing it from seven hours to two, for the European Theater Festival. It was a success, but I felt frustrated. So I decided to make this artwork to convey, if possible, the same magic I felt when I saw "Faust Fragments" in 1991.

Computers are very important to my way of painting, and I make extensive use of them, from layout to the almost final image. In this case, I mostly worked with a Quantel Graphic Paint Box to create images, and with a Mac for inputs and outputs. I digitized many elements, textures that I made in a traditional way, calligraphic drawings. Then I created 35 separate pieces: two quite big (3.30 metres x 3.30 metres) to be printed on canvas, the others of different sizes to be printed on silk, with a large, professional-quality printer specially designed for fabrics.

A significant scenographic element of Strehler's staging was a spiral, which symbolized Faust's life and his striving to move ahead. It was my starting point. Around it, I wrote some verses of the poem. Then on one side I separately painted 33 significant dramatic moments (to be printed on silk, then sewn onto the canvas), and on the other side I wrote and painted more verses, in German, English, and Italian. I put all the pieces together and finished the artwork by painting over it with oil and acrylic. To be seen on both sides, the artwork hangs from a special support, robust and light, very easy to mount and transport.

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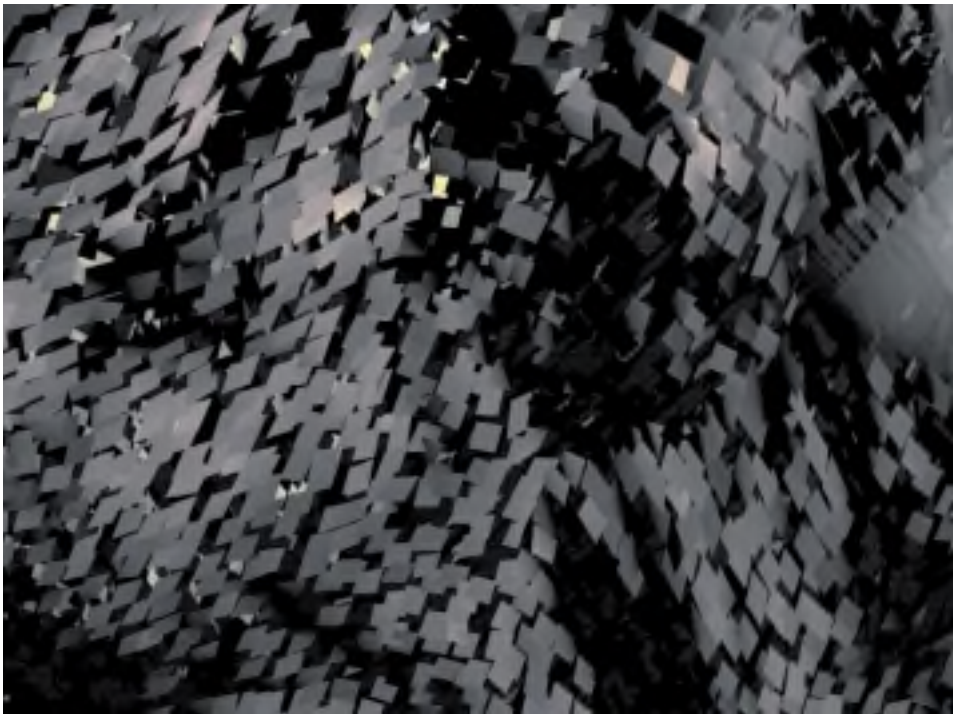
DAVID TAI BORNOFF



TARRYING WITH THE NEGATIVE
40 inches x 26 inches

Lacking strength, beauty hates understanding for asking of her what it cannot do. But the life of spirit is not the life that shrinks from death and keeps itself untouched by devastation, but rather the life that endures it and maintains itself in it. It wins truth only when, in utter dismemberment, it finds itself. This tarrying with the negative is the magical power that converts it into being.

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KEITH BROWN

GEO_01

The possibilities for computer-generated sculpture are obviously immense. As the computer gradually takes its place in the tool chest of the contemporary practitioner, we are inevitably seeing changes that challenge our traditional views and preconceptions about how sculpture is conceived, produced, and experienced. The computer and related technologies, for many, including myself, have become much more than simply a new set of design and production tools. They have presented us with completely new media to explore, and no doubt there will be many more to follow. If there is one single influence that will separate the art of this millennium from that of the past and constitute a paradigm shift of aesthetic and conceptual advancement, of equivalent cultural significance to the first "hand paintings" made in the caves of Paleolithic man, then my calculated guess is that it's going to be, if it is not already, computer technology.

My work embraces a wide range of digital activities, both virtual and actual. My main concern is with "real virtuality" or "cyber-realism" rather than "virtual reality," reversing the order between the cyber and the real. These works present sculptural forms and images that could not be realized except in the digital and cyber environments, thus producing a new order of object, which is made physically manifest in 2D and 3D media. Using the computer in a direct way as the medium, my work is conceived while interacting with the cyber-modeling environment. The work includes 2D and 3D printing techniques.

"Geo_01" was designed in 3ds max and output via a 3D Systems thermojet wax printer and then cast into bronze using the lost-wax technique. The burnished finish produces surface reflections that give the form a certain ambiguity, or elusive physical properties, that reflect and deform the environment it is placed in.

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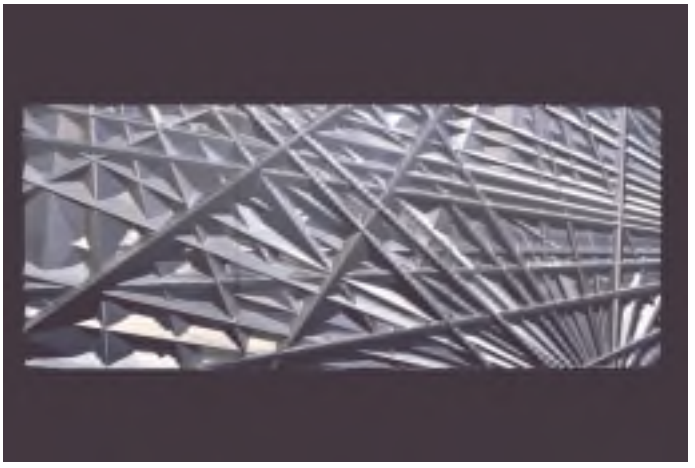
SHELDON BROWN



ISTORIA SCULPTURES

This series of wall-relief sculptures was created from a variety of computer-controlled modeling and fabrication processes. Each piece begins with the same seed of 3D object data transformed by a variety of algorithmic and modeling manipulations. The resulting sculptures are the intersection between material properties, object-data space, and constructive processes.

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GLORIA DeFILIPPS BRUSH

(7581) FROM LANGUAGE/TEXT II
20 inches x 24 inches

This image is from the series "Language Text II," which I began in 2001. The images are about the changing aura of language and its relationships with the objects existing in what we call real space. Objects wait to be recognized and enveloped by words, which form trajectories of both communication and mis-communication. Sometimes they are breaths without voice. They seek a secure syntactic position, but meaning is constantly devised, relocated, de-created.

Language slips, revealing and reviving, negotiating the soft and uncertain terrain of thought and interpretation.

The image was made with a scale-model architectural camera, which enables focusing on relatively small objects that are rendered in relatively sharp focus even when they are only inches away from the lens. The source images are then scanned using Photoshop software and digitally mediated.

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BRIT BUNKLEY

YIELD DISPLACED
22 inches x 34 inches x 3 inches

HAZARD DISPLACED
14 inches x 22 inches x 2 inches

"Yield Displaced" is one of several digitally produced sculptures that I completed as a working artist at SIGGRAPH 2002 in San Antonio. This sculpture is a paper LOM (Layered Object Manufactured object) rapid prototype. The LOM process builds an object (called a "part") by laying down individual layers (22 inches wide) of sticky paper (similar to masking tape). Each cross section of the part is then cut by a laser. The laser only cuts through one layer of paper at a time. Each piece of paper sticks to each previous layer, eventually building a complete rapid prototype made up of a hundreds of paper layers. The final "part," which resembles a block of wood, is then "de-cubed." At this stage, the waste sections of the material are easily removed in cube-like pieces.

The 3D LOM in "Yield Displaced" was made by sending the 3D STL file to Select Manufacturing Services, Grand Rapids, Michigan, as an email attachment. The LOM was then returned to San Antonio, where I "de-cubed" it by removing the waste material, and finally finished by sanding and coating the surface with polyurethane.

At the initial design stage, I utilized the "displaced map modifier" in Autodesk's 3D Studio VIZ (a sister program to 3ds max). This modifier functions by virtually "pushing" a dense wireframe mesh. The dark areas of the photo bitmap of the "hazard" road sign (from New Zealand) "push" the mesh in the light areas of the image, while "pulling" the dark areas. This action creates a relief of the image in the wire mesh 3D virtual object, sometimes producing objects with interesting and strange results, depending on the settings of the modifier.

Following the logic of Joseph Kosuth's "One and Three Chairs," the original image (used as the bitmap in the displaced modifier) is also included as part of the work as a mounted 2D print on aluminum underneath the 3D distorted object.

"Hazard Displaced" was also created at SIGGRAPH 2002. This work is a CNC object carved from hard foam on a machine that is directed by software. The software "reads" a 3D file representing the object and sends signals to the machine that then cuts the material according to the topography of the 3D STL file.

BRIT BUNKLEY

LOST

I have long been fascinated by the etymology of "Santa Claus," a mythical figure with roots in ancient European and Middle Eastern folklore. The current Santa Claus caricature was based on St. Nicholas of Lycia, a 4th-century bishop of Asia Minor known for giving gifts to the poor (according to legend, by dropping gold down their chimneys). During the Middle Ages in Europe, St. Nicholas evolved into "Sankt Nikolaus" in Germany, and "Sanct Herr Nicholaas" or "Sinterklaas" in Holland. In these countries, Nicholas was sometimes said to ride through the sky on a horse delivering gifts. He wore a bishop's robes, and was at times accompanied by Black Peter, an elf whose job was to whip naughty children."[1] By the 18th century, this character was replaced by the more modernized "Dutch figure, SinterKlaas, which settlers brought with them to Nieuw Amsterdam (now New York) and who inspired the American transformation of the figure and even gave him his name." It was in this future commercial and military capital of the world where our modern notion of a jolly fat Santa Claus emerged in the 19th century. The original "Santa Claus," St. Nicholas, a resident of what is now Turkey, likely appeared far more Middle Eastern in appearance than our current American caricature of a jolly, ruddy fat man in red invented by artist Thomas Nast of Harper's Magazine in 1868. One should remember that this saint's life story symbolized love, caring, and generosity.

The soundtrack music is by the Canadian group Set Fire to Flames (an adjunct band to the Canadian group Godspeed! You Black Emperor). The software used to create this 59-second video was made with Autodesk VIZ 4 and Adobe Premiere utilizing a RPC (Real People Content) moving-image plug-in of Santa Claus by Archvison.)

1. Microsoft Encarta Encyclopedia 2003.

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SHERIANN KI SUN BURNHAM

CALDERA

I like to create puzzles for myself to solve. I delight in the act of building a sculpture by hand as much as using the computer to paint digital imagery that will be applied to a sculpture. The three-dimensional form becomes my canvas, and a digital painting is constructed to fit the topology it will ultimately inhabit. The imagery becomes a caldron of colorful energy, erupting from some unknown landscape, and "Caldera" overflows into our existence.

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STEPHEN BURNS

DIGITAL ECSTASY
24 inches x 30 inches

MEMORIES OF LIFE PASSED BY
32 inches x 40 inches

Stephen Burns has discovered the same passion for the digital medium as he has for photography as an art form. He began as a photographer 22 years ago and progressed toward the digital medium. His influences include the great abstractionists and the surrealists, including Jackson Pollock, Wassily Kandinsky, Pablo Picasso, Franz Kline, and Lenore Fini, to name a few.

He is a corporate instructor and lecturer in the application of digital art. He has exhibited digital fine art internationally at galleries such as Durban Art Museum in South Africa; Citizens Gallery in Yokahama, Japan; and the CECUT Museum, Mexico, among others. He won first place in the prestigious Seybold International digital arts contest.

ARTIST'S STATEMENT
I like to challenge the viewer's psyche by presenting the unknown. I combine the animate with the inanimate because we are inseparable from our environment and the energies that impact upon us. I use several unrelated images to create one Harmonious Chrome Allusion that is unique in form. Each work is made with no preconceived notion as to what the final image will become.

The genesis of the chrome-allusion process went beyond merely eliciting an emotional response and aimed instead at the spiritual in art. In expressing the spiritual, I bring out an infusion of energy pulsating through, in, and around my imagery thus giving each creation a life of its own. Chrome allusion is about energy composed in such a way that the viewer senses in the work an embodiment of life on a rhythmical scale.

Color is extremely important to me, because it can evoke certain elements in our psyches. By varying intensities and contrasts, a spiritual vibration is set up that can generate new awareness in the viewer. On a simple level, colors such as red might denote qualities like will-power, freedom, vitality, action, while blue could reflect love, spiritual enlightenment, gentleness, etc. If those qualities are accessed in the artwork, the viewer should relate to the work on more of a spiritual and psychological level rather than merely emotional. It is important that the viewer receives a harmonious experience. After all, the viewer is the end-product, and the goal of art is the stimulation of the imagination.

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TERRY CALEN

2002_18
24 inches x 24 inches

2002_19
24 inches x 24 inches

2002_21
24 inches x 24 inches

The computer provides a wonderful environment for experimentation. No materials are wasted. Setup time is minimal. Tests can be easily and quickly saved. Changes can be made and different versions can be combined. I try to take full advantage of these attributes by incorporating experimentation into my workflow. I usually begin with only a very loose concept in mind. I am often motivated by something I've seen. Sometimes a simple shape can begin the process. Through experimentation, I usually discover multiple directions the work could take, and I may spend months exploring these in depth, creating several images along the way. I am currently fascinated by surface relationships and how surfaces can be used as structural elements within a composition. By surfaces, I mean shapes with very little thickness. In three-dimensional modeling, surfaces with no thickness are possible but they do not convey a proper sense of form and substance. I usually want to maintain a sense of reality in my work. I want my scenes to appear to exist in real space and to have physical attributes that suggest they could exist.

My goal is always to present more than the technology I use. I want my images to be emotionally evocative and to succeed on the basis of their visual impact rather than any implied meaning. It's a grand expectation that may never be completely satisfied. I believe the artist's initiative begins a process that only develops its full potential through those who experience it. I encourage you to explore for yourself and share your own creativity in the completion of this process.

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KAYE GOLDMAN CLARKE

JASON D. LAST SEEN CIRCA 1969 NEAR REXFORD AND OLYMPIC, BEVERLY HILLS, CA
16 7/8 inches x 12 5/8 inches and 12 5/8 inches x 16 7/8 inches

KATHY T. LAST SEEN CIRCA 1969 AT 1910 OCEAN WAY, SANTA MONICA, CA
16 7/8inches x 12 5/8 inches and 16 7/8 inches x 12 5/8 inches

In "Last Seen…" I set out to document a period of my life for which no record exists. Although the work utilizes my personal history, it is not about nostalgia or an effort to retrieve memories. Rather, it explores the elusive nature of memory itself.

The portraits are composites, created with the computer program, Faces, developed for forensic sketch artists. They were pieced together feature by feature, much as are the faces of criminal suspects from eyewitness accounts. The faithfulness of each portrait to its subject varies according to the limits of the program, the clarity of each particular memory, and the creative, often uncanny, ability of memory itself to play with "truth."

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KAYE GOLDMAN CLARKE

EMMA K. LAST SEEN CIRCA 1969 AT 4729 PICO BOULEVARD, LOS ANGELES, CA
16 7/8 inches x 12 5/8 inches and 16 7/8 inches x 12 5/8 inches

JERRY M. LAST SEEN CIRCA 1968 AT FOUNTAIN NEAR POINSETTIA, W. HOLLYWOOD, CA
16 7/8 inches x 12 5/8 inches and 16 7/8 inches x 12 5/8 inches

The photographs are the result of my recent revisitation of sites associated with the people depicted in the portraits: homes where we lived, or places we frequented. Again, due to changes in the physical landscape over time or the haziness of memory, some photos are visually "truer" than others: I found some buildings essentially unchanged, while some photographs use stand-ins in order to more accurately reflect my remembered "reality." In others, I substituted what currently stands on the spot, although it might bear only a slight resemblance to its counterpart in the past.

Thus, "Last Seen..." forays into territory where the present and the past impinge on one another, creating a curious mixture of the factual and fictive, the real and surreal, the realm of the memory.

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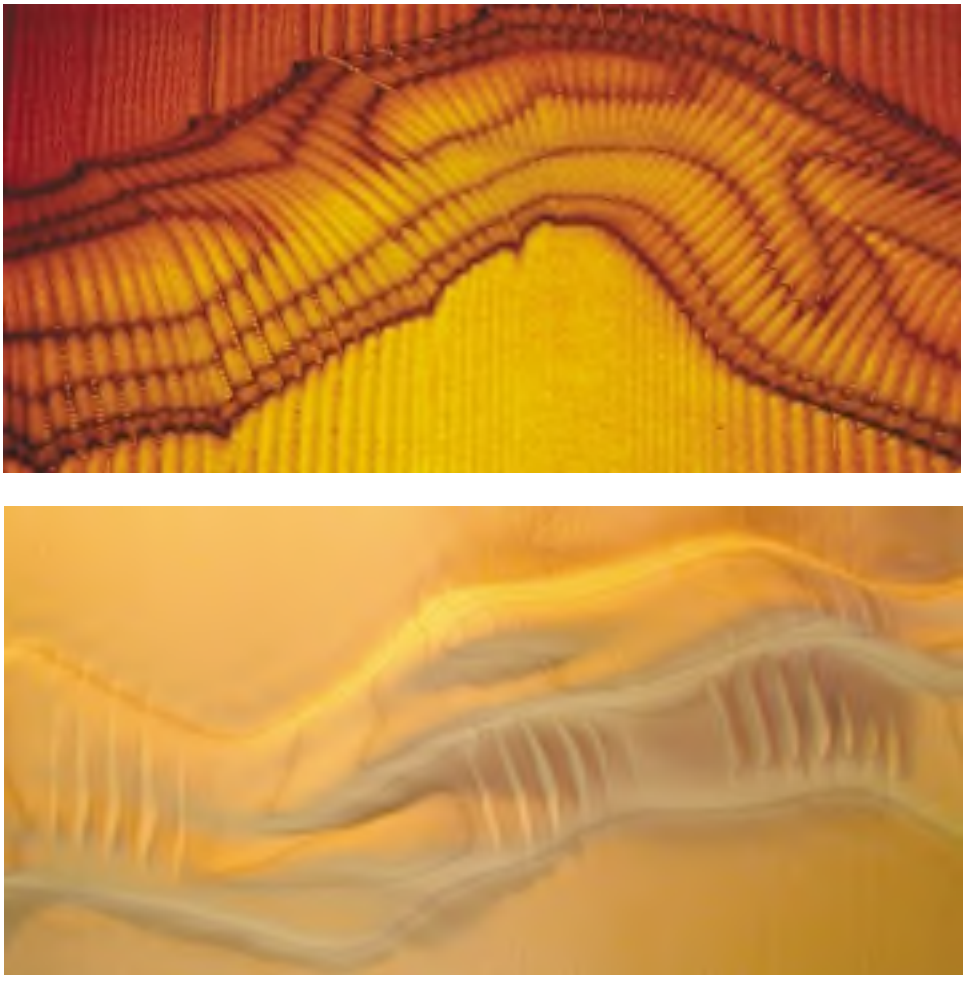
VISHAL DAR



PROJECT: SNAKE
2 feet x 4 feet

The paradigm shifts currently at play in contemporary art, architecture, and design are fundamental and inevitable, displacing many of the well-established conventions. Models of art and design capable of consistent, continual, and dynamic transformation are replacing the static norms of conventional processes. The predictable relationships between design and representation are abandoned in favor of computationally generated complexities.

"Project: Snake" represents an incessant fluid process of mutation, deformation, and delirium, a dynamically changing form that is both surface and cavity, expressing the limitless in relative terms. The metaphor of the snake investigates experimental art and contemporary design inquiries that would explore the possibilities offered by digital processes akin to surfaces coupled with a variety of conditional experiences such as skin structure, enclosure, representation, ornamentation, perception, gender, and performance.

As we continue to reduce the space of slippage between the plastic solidity of material and the ephemeral liquidity of light, imagination and matter begin to speak the same language.

The digital sculptures were produced with Alias|Wavefront Maya, and the data were processed through SURFCAM, then translated through the CNC milling process into sculptures using medium-density fiberboard. A large-scale sculpture was produced in high-density foam and converted into an acrylic mould through the process of vacuum forming.

Vishal Dar, an architect and new-media artist, conceptualizes, designs, and builds works that inform and overlap the field of architecture, design, film/animation, and interactive art.

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HANS DEHLINGER

TURM UNTER GLAS
24 centimeters x 29 centimeters

TREE11
23.5 centimeters x 23.5 centimeters

Computer art is usually regarded as short-lived with respect to the durability of the objects over time. For prints, an expected lifetime of 25 years (longer in special cases) is assumed, and the goal of newer processes is 100 years (not a long time, given the timespans of art history, which, depending on one's viewpoint, may be in the range of 30,000 years). To overcome this problem (if one chooses to regard it as a problem), processes using high temperature, which melt computer-generated images onto glass, may be used.

This work, "Turm unter Glass," is "permanent" under "normal" circumstances. It is part of a series of experiments that addresses the permanency and durability of computer-generated art objects. In these experiments, algorithmically generated drawings are:

1. Melted into the surface of thick glass sheets under high temperature.
2. Sandwiched and melted in between two glass sheets.
3. Cut into stainless steel with lasers.

The drawings are line images only, because lines are very simple geometric structures and, at the same time, inexhaustibly rich elements of artistic expressions. This is one of the main reasons why I like to work with lines. I have chosen a personal definition, which makes these lines distinctly and identifiably my lines. For the generation of such lines, relevant feature values are: number of starting points, number of lines originating from a given point, angular boundaries for a polygon, spread of a segment, and number of segments in a polygon. It is the starting point that calls for the first decision in a drawing process, no matter if the pen is steered by the hand of an artist or a computer-driven device. The question of starting points and the question of the "character" of the line developing from those points have to be taken care of by the programme. Especially interesting are two sets of algorithms, those which generate drawings in a "one-shot" generative process, and those that make use of "composite" processes.

HANS DEHLINGER

TWELVE-NINE-FIVE OUT OF TWO TO THE POWER 18
24 centimeters x 45 centimeters

Computer art is usually regarded as short-lived with respect to the durability of the objects over time. For prints, an expected lifetime of 25 years (longer in special cases) is assumed, and the goal of newer processes is 100 years (not a long time, given the timespans of art history, which, depending on one's viewpoint, may be in the range of 30,000 years). To overcome this problem (if one chooses to regard it as a problem), processes using high temperature, which melt computer-generated images onto glass, may be used.

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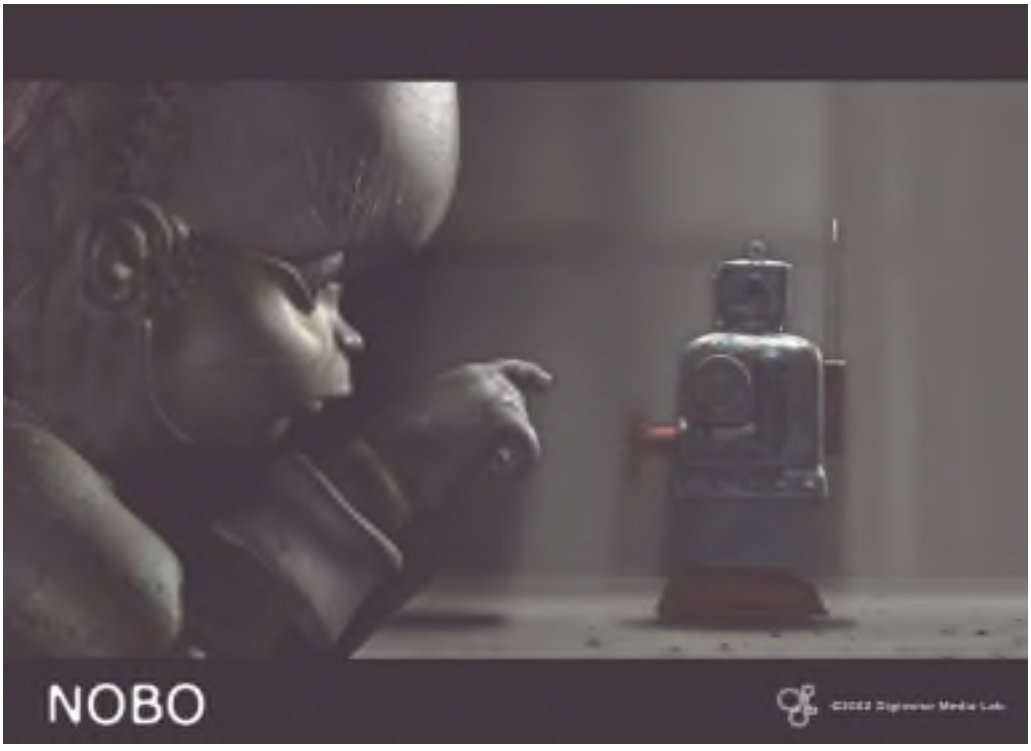
DIGINOISE MEDIA LAB



NOBO

Set within a highly developed, but technologically over-mechanized landscape dense with high-rise buildings and skyscrapers, the narrative of Nobo paints an environmental wasteland where the only occupants are robots ,and buildings are built so high up on top of one another that the sky has virtually disappeared. A little patch-gear robot named Nobo attempts to discover the world beyond the hidden sky. Animated and rendered on Maya 4.0, composited in After Effects, on Windows.

Producer
Lisa Kawamoto Hsu

Director
Shih-Wei Wang

Executive Producer
Chih-Hwa Liu

Editing Director
Jumbo

Assistant Producer
Lin I-Hui

Sound Engineer
Che-Chin Yang

Composer
Thio Hugo P.

Art Director
Jiun-Yu Lai

Technical Directors
Yung-Chieh Yu, Kas Kyo

Compositing Artist
David Rinder

Contact
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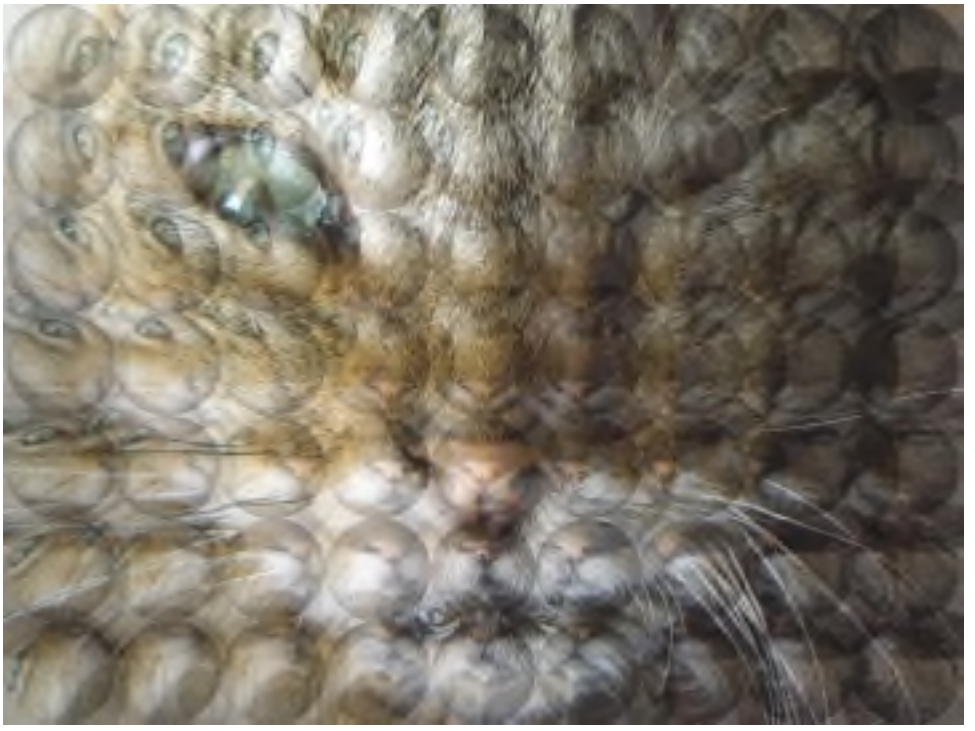
JAMES DONNELLY



CAT'S EYE
21 inches x 17 inches

My works are experiments with manipulating digital photographs. The primary software used is Adobe Photoshop and, sometimes, Newtek Lightwave 3D.

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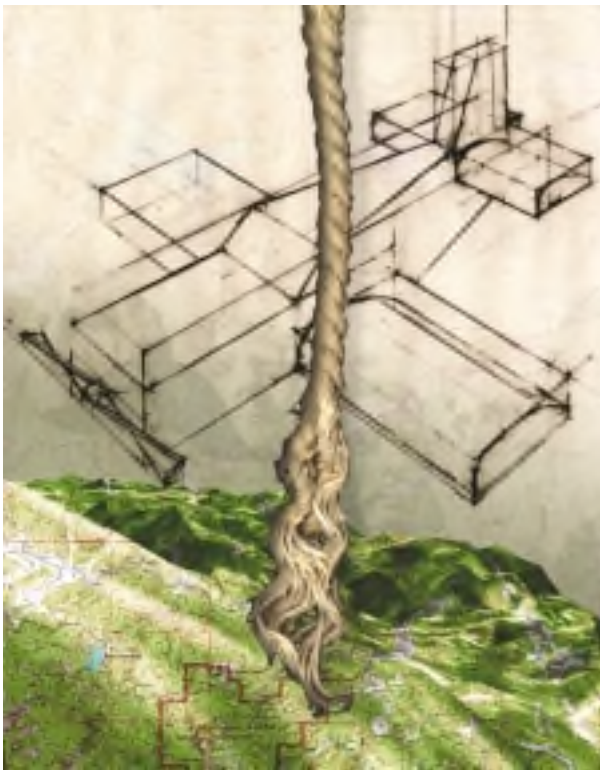
JAMES EDWARDS

GOLDEN GATE
25.5 inches x 20 inches



RUSHMORE
25.5 inches x 20 inches

Where are we? Where have we been? Location shapes who we are, how we think, and what we do. This knowledge forms a collective memory of "place." All of us have a history of places: memories of a childhood home or neighborhood, the schools we attended, summer vacations, where we live and work. Some places are personal. Some are public. Through my work, some are shared. This is the starting point of the two series of digital prints: "Drawing Lessons" and "Locations." I combine architectural and/or geographic imagery, scanned objects, and drawings referencing specific locations. I do not intend to suggest cause-and-effect relationships between these elements, or a clichéd reminiscence, but rather to create a layered spatial matrix, a controlled displacement of space, that presents places of personal or public significance and the possibility of their relationship to creative behavior.

Creating the "Locations" series required the use of both PC and Macintosh operating systems. Geographic data were located on the Internet and downloaded. ArcView, a software program for translating statistical data into visual form, was used to build terrain models of landscapes. These were exported into Photoshop, combined with scanned objects and small drawings, and manipulated further. The finished artworks form limited editions of archival prints that represent a synthesis of science and art.

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PAUL ELIA

UNTITLED
9.75 inches x 6 inches x 7 inches

I create sculptures in glass, bronze, and aluminum. While visiting a friend, I noticed a strange machine humming away in the middle of his office. I had never seen anything like this before. It was a rapid prototyper "printing" a 3D model. I was captivated and fascinated. Before my eyes, the image on a computer screen was being made into a solid. While my friend was using the machine for a prototype automotive part, I instantly saw a place in the art world for this technology. I researched, then purchased solid modeling software and took a course in 3D modeling.

The theme of this untitled piece is that of an eye seeing fire and water interact. Fire is represented by a flame (the ends), and water is represented by a wave (the top). The eye is represented by eyelids looking upward (the base). After drawing sketches on paper, I drew the shapes on my computer. After all the elements were drawn in wireframe, I changed the splines and curves into a solid. I was fascinated to see how the computer seamlessly blended the three elements together. Where the wave rolled down, the flame became compressed, and where the eyelids widened so did the flame. It was magical!

The "solid" was exported to an STL (stereolithography) file, and the sculpture took form when it was made into an ABS piece. Once the prototype was made, I used wax and plaster to make molds for casting. I have produced this sculpture in glass, bronze, and aluminum.

This form of artwork is a fusion of old and new. Created with technology, it is a mesh of thousands of odd triangles on the screen (an art form unto itself), yet it utilizes the age-old method of lost wax and plaster to become a reality.

The result is an organic sculpture that magnetically beckons those who pass by to reach out and touch it.

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AMANDA ERVIN

LEADING MEMORY
16 inches x 49 inches

With new technologies emerging that will impose new thought patterns on our culture, one could easily imagine a situation where cameras using pattern recognition become decision makers for a lot of what we do. Without a human-built database full of childhood (and adult) memories and ideas, a camera can only make so many associations on an absolute level.

This work utilizes pattern-recognition technology to interpret the physical world. Key characters from an image representing a memory are replaced by images the computer has recognized as being those characters. If saved as part of an empty database, as in this situation, the abstract results impose new possibilities for what that memory might now be. When the program recognizes certain shapes as sad, happy, or arrogant, these abstract shapes take on an entirely new meaning.

Exaggeration of these ideas becomes a ridiculous parody of human interpretation. However, it's not such an outrageous stretch when compared to our own approach to categorizing and evaluating a given situation and its elements.

The system used to create this work was attached to a computer capable of accessing much more information than human recollection and much more immediately via the internet or any other database. The experience of proof is lost through this process, and the computer has only the absolute word of its programmers to shape its understanding.

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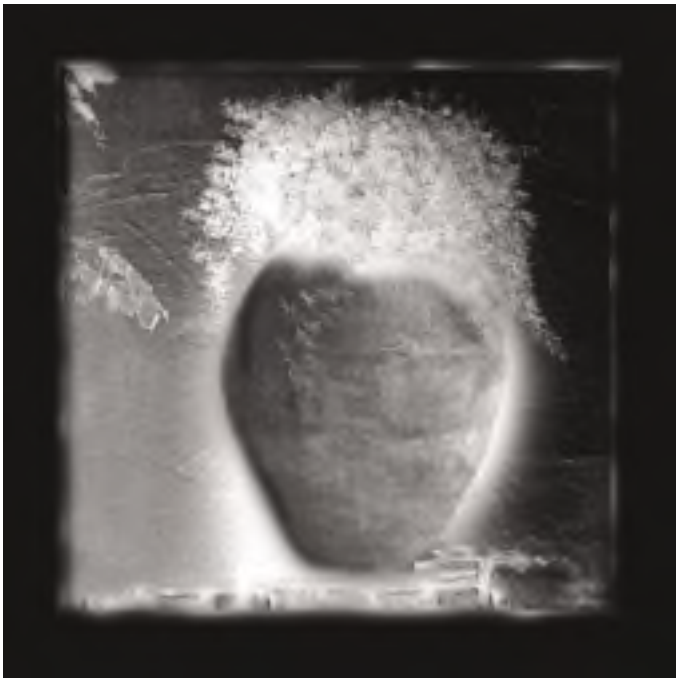
JOAN EVERDS



FERNS
12.5 inches x 15.5 inches

PEARS
12.5 inches x 15.5 inches

I strive to achieve a sense of classic elegance in my digital work. My dramatic, monochrome, high-contrast images focus on still life. I concentrate on familiar themes, and much of my subject matter can be found in my home. I feel that by limiting my work to black and white, I can present an image with added impact, precision, and clarity.

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ROBERT FATHAUER

FIRE AND ICE
22 inches x 20 inches

FRACTUS
21 inches x 17 inches

I am interested in the use of mathematics to create art that explores the themes with which I am personally intrigued. These are the infinite, the mathematical nature of the universe, the interplay of science and religion in this context, and my own relationship to, or place in, the universe.

The mathematical content of my work draws on the fields of tiling, fractals, or both. The mathematical constructs that appear in my works are of my own discovery. The fractal objects I employ are graphically constructed, in contrast to the more common computation fractals such as the Mandelbrot set.Over several years, I have discovered a wide variety of fractal tilings and related constructs, and I have published two papers on these in the journal *Computers and Graphics*. These constructs are employed in many of my digital prints.

The work of M.C. Escher has been a major source of inspiration for me, and I have executed a number of prints based on tilings in which the individual tiles are recognizable, Escheresque motifs. I have tried to extend Escher's work by taking advantage of mathematical discoveries made since Escher's time, most notably fractals, as well as by using a personal computer to create constructs that are too complex to create by hand.

While my recent artworks are digital prints, I have also worked with screen prints, woodcuts, acrylic painting, and stained glass. In addition to artworks, I produce tiling puzzles. I also work as a research scientist in the field of semiconductor materials and devices.

2 D

JURGEN FAUST

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WALLWORKS
64 inches x 40 inches

"Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world."
-Albert Einstein (1879-1955)

For more than 15 years, I have explored the phenomenon of time through an interdisciplinary body of works. We experience time on various levels, but we always perceive and imagine time as a change of form and shape, and the appearance of layers. We don't perceive time as a phenomenon by itself, because we haven't a distinct sense for it. In my view, we construct time, as we construct "what is out there" and which we call reality. The difference between a constructed image of the world and the construction of time is obvious for me. The construction of change, which is interwoven with the concept of time, requires a more intense level of presence. It requires that I am not only aware of the construction of the image, but also that I have to be aware of the construction of the change of the image. In space, time appears in layers, which we can see in the growth and decay of living substance or in the various layers of media. The surface carries the image; the light mediates the image; our vision sense mediates the image; and our brain mediates the retinal image. The various layers makes it clearer: a medium always contains another.

I use a variety of material, images, digital stills, animation, video, space design, and installation work to communicate my ideas. The idea and concept drive the exploration of the media I apply, and my artwork starts where I need images to complete a circle, where I realize that scientific descriptions miss the point. The new communication technologies allow me to create a body of work that already includes the altered perception mediated through new media. The recent body of work (digital prints) is a tightrope walk between the abstract and the concrete. What appears as a 20th-century drawing is a digital print of a photographic image of a wall. The walls show aging aspects, a collection of incidental scratches, marks, rabbles, spots, stains, and objects we identify as drawings, as long as we don't know the history and the context.

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DIANE FENSTER

From left to right: EARS, KNIVES, and WASHING HANDS
From the series: YOUR DREAMS AND OMENS REVEALED
Each panel 44 inches x 108 inches

Humans have always attempted to pull back the veils obscuring the future. We peek inside the soothsayer's parlor and gaze through the curtains that hide the cards on the table. The patterns of our future shimmer as predictions of events that will either ravage or embrace our lives. These are the cards we draw when we pick up the deck. No card is alike. No deck the same. Yet because we share the same chance of the draw, we are bound together, suspended in the picture albums of all the worlds.

During the early 20th century, dream books became very popular. These books, produced to advertise patent medicine, were odd compendiums of dream images, superstitions, and omens along with their symbolic meanings. Gathered from both historical custom and tradition, as well as individual insight and interpretation, they were used to forecast and predict the future, as well as understand the past. Seen as primitive lists and summaries, and sophisticated presentations of Jungian-like dictionaries of symbolic objects and ideas, the dreams and omens were seen to reflect and represent (symbolically) our life and its place in the cosmos.

Drawing on inspiration from my collection of early dream books, I used both digital and traditional photographic techniques to produce "Dreams and Omens" as 20-inch-by-24-inch Polaroid image transfers printed onto fabric.

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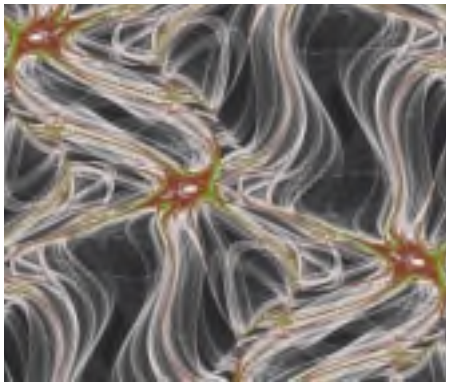
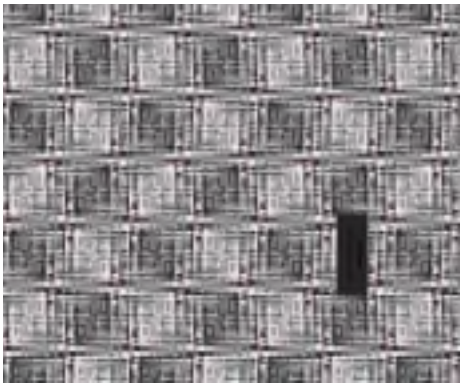
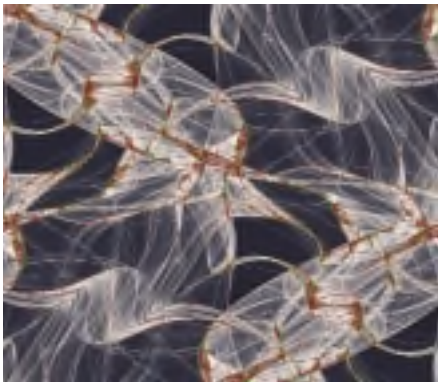
MICHAEL FIELD



NEURALNET
33 inches x 27 inches



NOEXIT
27 inches x 23 inches



ENDGAME
33 inches x 27 inches

With the discovery in the late 1920s of quantum mechanics and the uncertainty principle, many physicists began to adopt the view that the universe was intrinsically non-deterministic. That is, at a very fundamental level, matters are decided by chance rather than any formulaic recipe. A consequence of this viewpoint is that the regularity and form one sees everywhere is often an expression of statistical regularity. That is, structure can be, and often is, a (geometric) realization of "laws of averages." Life itself, depending as it does on the statistical laws of genetics and inheritance, is maybe the best and most familiar expression of the role that randomness plays in our existence.

In my work, I use ideas based on symmetry and chaotic dynamical systems as a means of expressing and representing in an abstract way the underlying structure that lies within chaos and randomness.

All of my work is created using software that I have been developing now for 14 years. This software, which I call prism (an acronym for Programs for the Interactive Study of Maps), uses ideas based on my mathematical research into symmetry, chaos, and dynamics. As part of prism, I have developed many algorithms specifically to achieve some of the effects that I obtain in my pieces. I use prism for the design and coloring of the piece. I do not use any commercial software packages. I also build the computers that I use to create these pieces. The finished work is printed onto photographic paper using a Durst Lambda 130.

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PHILIP FIELD

SPRING CLEANING
16 inches x 20 inches

AT THE IRON SKILLET
16 inches x 20 inches

I consider the computer print to be one of the great technological advancements in the long history of traditional printmaking. Many of my prints, such as "She Who Rides The Lion," start out as part of my "daily diary"' a simple pencil drawing done each night on a 4-inch-by-6-inch index card. Most of them include a red creature called Wrathhuesos, which represents my wife, and a Bear figure that represents myself. There are an additional eight to 10 characters that make up my "family." The best of them are scanned into the computer, and the artistic development and decision making takes place within the context of Painter and Photoshop, and the opportunities and serendipity of the digital world. I use a Wacom drawing tablet to "paint" and develop them, and print on an Epson 1520 color inkjet printer.

PHILIP FIELD

DIALING HOME
16 inches x 20 inches

SHE WHO RIDES THE LION
16 inches x 20 inches

I am a professor of art at the University of Texas – Pan American in Edinburg, Texas.

I was born in Brooklyn, New York and received my first art instruction in children's classes at the Brooklyn Museum of Art and private lessons in painting from the artist Evelyn Eisgrau. I studied summers at the Yale-Norfolk Summer School of Art and the Art Students League of New York in Woodstock, New York and received a BFA in painting from Syracuse University and an MFA in painting from the Rhode Island School of Design. I studied at the Vienna Academy of Fine Arts on a Fulbright Grant in Painting.

My prints and paintings are in the public collections of Syracuse University, the Hunterdon Art Center, The University of Dallas, the Tulsa City-County Public Library, the Arkansas Arts Center, the Bank of New York Collection, and The University of Texas-Pan American.

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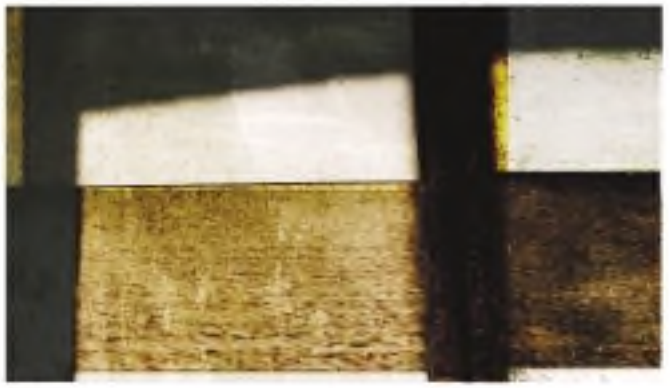
JOHN FILLWALK



PLAINS STUDY I
20 inches x 34 inches

PLAINS STUDY II
20 inches x 27 inches

"Plains Study I" and "Plains Study II" are from a series of digital prints on canvas dealing with the superimposition of the constructed environment on the landscape. These prints are created using digital imaging, painting, and proofing software. For output, I work in a calibrated fine-art, large-format printing environment, utilizing archival pigment-based inks and specially coated fine-art canvas.

As an intermedia artist, I approach exploration of new forms from a position grounded in experimentation among media, disciplines, and processes. I investigate and evaluate emerging technologies that inform my approach to working in a variety of media, including video installation, single-channel video, sound art, 3D animation, video sculpture, digital imaging, interactive, and net-based work. In developing new concepts and forms, I draw on intersections between Eastern philosophies and Western science, and juxtapositions between built and natural constructs.

Conceptually, I position my work to act as a mediator between physical and implied space, charging the transformative nature of a composition. Expansive, accommodating space becomes increasingly interior and condensed, providing an environment for reorientation within a work. I am particularly interested in realizing the potential of form and image that affords interaction at its most fundamental level. As an intermedia artist, I have also come to value the synergy of collaboration and have worked closely with composers, scientists, architects, and engineers on a variety of large-scale projects.

New media extend the range of the traditional studio by establishing a palette of time, motion, interactivity, and virtuality. I find that the ephemeral nature of electronic and intermedia work transcends the traditional modes and expectations of art. The significance of the tangible becomes fleeting, shifting emphasis from the object to the experience. Electronic and time-based works, by their very nature, are inherently transformative, creating a shifting context between what is known and what has yet to be explored.

MARY FLANAGAN
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[UNNATURAL ELEMENTS : AVATAR PORTRAITS]
30 inches x 20 inches

"[unnatural elements]" presents images of researchers and artists from Taiwan and the United States that demonstrate that conversion from the image of the physical body to the image of the virtual is not a typical smooth computational process.

The images featured in "[unnatural elements]" show the effects of the creation of a digital nature and digital elements. Most researchers working in 3D technologies strive for "perfection." However, our team was interested in the translation process. The digital prints we created are collaborations developed while we created software for 3D "instant" avatars. These representations are more interesting than the perfection later achieved in the development of the software tools, however, because they show that the translation between the real and the virtual does indeed have seams, gaps, and bumps.

The images were created by using 3D head scans of the artists from composited images produced by a video camera and stitching them together in custom software. Interestingly, the process generated "natural" eruptions inherent to the heads, and each scan seemed to take on forms reminiscent of "natural" eruptions we see in earth, fire, water, and wind.

Cyberspace is a socially mediated construction made clear through the use of avatars or personal representations in virtual worlds. By putting ourselves into digital worlds, we lose the self and become one with virtual spaces' new elements. Digital culture's construction of landscapes and bodies has been a way to create new cosmologies, new elements. By putting ourselves into digitally constructed realities, we call into question the nature of the self in a digital culture and the ways the new selves are created. What is our relationship to our own data, our bodies sampled with the latest digital technology?

Here, our new bodies erupt with artifacts and take on unexpected resemblances to earthbound natural elements like naturally occurring algorithms. Thus the computer, in creating artifacts, is effectively doing nature's work. Offering us a way to critically examine the body in cyberspace and our conventions and ideals of interactive avatars and the drive for 3D art "realism," these pieces work to provoke a dialogue about the real and "natural" we try so desperately to produce in digital space.

This collaboration was made possible by funding from the Fulbright US Scholar Program and the Foundation for Scholarly Exchange, 2001.

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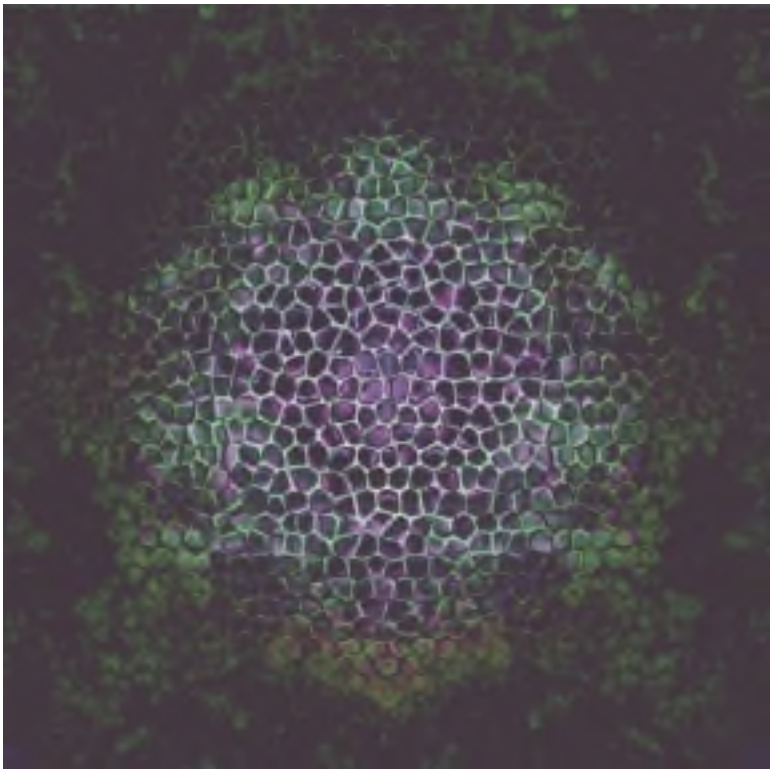
ROBT. FRICK



CELL
64 inches x 64 inches

Creating artwork that is totally non-representative at inception, that remains so upon completion, yet that allows the viewer to derive representative imagery from abstractions, can be very dynamic. This type of work inadvertently addresses the brain's ability to subconsciously 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 doesn'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.

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GREGORY PATRICK GARVEY

PORTRAIT OF VLADA PETRIC (AFTER INGRES)
38 inches x 28 inches

When I first discussed doing a portrait with Vlada Petric, the force his of personality immediately conjured up Jean Auguste Dominique Ingres' famous sketch and painting of Louis Bertin. Serving many years as the first curator and now a member of the Advisory Board of the Harvard Film Archive, Vlada Petric has a compelling presence, which reinforces his passion for the rich legacy of film.

With this portrait, I pursue concerns similar to those that inform my interactive computer-based installations. With a background in drawing, painting, and printmaking, I've retained an interest in the human figure and in the role of the individual gesture and mark as essential parts of image making. In both prints and installations, I seek to explore the nature of the digital medium and the human-computer user interface by engaging the eye, mind, and body of the viewer or participant.

In the early 1980s, I began to experiment with using computer graphics paint systems to directly "frame grab" a subject. Limits in resolution led me to digitally collage multiple views together to achieve greater detail, resulting in a composite image that could be produced in no other way. I noted my affinity with the strategy of analytical cubism to juxtapose multiple points of view and the Polaroid collage portraits by David Hockney.

With painting and drawing, the brush stroke and the gesture of the line are the substrate upon which the illusion of representation is built. With computer graphics, the pixel is the "means of representation" but is not meant to be discernable.

As with the pointillism of Seurat, the variation of pixel resolution becomes an essential part of the surface of the work. As the eye makes discrete movements called saccades, it fixates on regions of high-resolution detail. Unlike depth of field generated by a single-point-of-view optical lens, I compose placement of areas of high-resolution (in-focus details) and areas of lower resolution (out-of-focus) to create an artificial depth of focus in the image.

When we look at 2D images, we perform a dance of perception, moving not only our eyes, but also our bodies. We interactively look at parts and wholes of an image at different distances over time at our own volition. In my view, the very essence of interactivity is found in the act of looking, which takes place in space and time.

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MICHELLE GAY

BATTLE GAME

For years, I have used the language and tools of technology to create poetic works that call attention to the technology itself. For instance, in this work, I used C++ source code from Quake as a "weaving tool" to present two "representations" of battles played off one another. One is an embroidered document of the Battle of Hastings in 1066, produced by a number of anonymous women. The other is the actual line-for-line programming code used to run Quake, the contemporary online war game that takes place in virtual space). I merged these two depictions by creating the code-based image on a computer and printing it onto a woven fabric in the exact scale of the original tapestry.

From a distance, the viewer sees a tapestry that has the appearance of the historic Bayeux Tapestry. As you approach, coming closer in body and, metaphorically, in "time," the images of the Bayeux break apart into computer-program text (courier, uppercase, 10 point), where you can read all the specific documents needed to operate Quake, including the C++ dictionary, the game manual, and all the key commands. Where the text ends, the drawing ends, and the tapestry begins to look like a time-worn tapestry.

In "Battle Game," I enjoy the conflation of the old and the new. Thinking of old technology and the concept of legacy machines, I chuckle at and relish the thought that textiles are always backwards-compatible.

In this piece, I'm playing with the idea that code can be both content and structure, material and subject. Those who have looked at and worked with programming languages recognize that the logic and writing can be very beautiful. In many of the works that I have produced over the past nine years, I've revealed some of this language/code as an entity or element within the work.

"Battle Game" also allows us to subtly explore ideas about the military, the continuity of war, gaming, and theories of play and violence.

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INTO THE TUNNEL
18 inches x 18 inches

REMAINS OF THE DAY
18 inches x 18 inches

REMNANTS OF THE SOUL
18 inches x 18 inches

ST. PATRICK'S DOORS
10 inches x 10 inches

One of the delights (rather, the seduction) of working as an artist in the 21st century is using digital technologies (that continue to become more sophisticated). I think (no, I know), that I am participating in an authentic revolution. Before the revolution, I received my Master of Arts in experimental printmaking, specializing in 3D intaglio prints, photography, and very early computer graphics. Since 1983, I have been working with the computer and creating digital art.

The basis of my work is in using combinations and permutations of "throw-away" corrugated cardboard boxes and their inner divider elements. Now, however, instead of drawing the image on a zinc plate, I am utilizing electronic techniques to scan an image (my own sculptures, photographs, or prints) with a digital video recorder or digital camera.

Using digital images seems to be a natural evolution of the method that printmakers have been utilizing for centuries: layering. I take my intaglio prints, ghost prints, and monoprints and transform them by adding or compositing portions of a new digital image to them. These new digital methods are exciting additions to the print vocabulary. I can print on a canvas, hand-made paper, transparent media, silk, metal, and then I can transfer images through a heat method (on and on and on). I end up with paintings on canvas or handmade paper using large-format printers. To these new creations, I add handwork of encaustic, gold leaf, and metal.

I admit that there seems to be a little cognitive dissonance (and I like that dissonance) in my use of high-tech software and hardware to depict urban detritus (the "throw-aways," the "quickly disposable," and the "tacky"). In my hands, the digitally assisted and reworked images of corrugated cardboard boxes, dividers, and crates become an illusion to another world or universe. I am inventing a new world, new landmarks to point to the familiar but unacknowledged. I give visual clues of a dilapidated apartment house, the slums along the border, or the foretelling of a "blade runner" future for Los Angeles in the 22nd century. I depict alternative universes. Creation of these new universes is a symbol of my search for time without end or perhaps life to be continued … somewhere else.

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DAVID GLYNN

CRAYOLA
8 inches x 12 inches

I grew up with Crayolas as one of my first art supplies. Many people are aware that the color called "Flesh" since 1949 was voluntarily changed to "Peach" in 1962, partially as a response to the US Civil Rights Movement (see www.crayola.com). Having photographed over 64 models in the past 10 years for use in my artwork, I consider each of them to be a unique part of my palette. As represented here, one of the colors gets to describe the concept of flesh by coming to life—free to create her own steps through the world.

With digital media, due to its sheer range and flexibility, there is sometimes an overuse of color. But I believe it allows for the possibility of fine tuning one's vision as opposed to just utilizing the available palette. Having (if anything) only a numeric value, digital hues need not be loaded with politically divisive names, and they can exist as "pure color."

DAVID GLYNN

3-D POOL
12 inches x 12 inches x 8 inches

From a series called "Architech," "3-D Pool" is a result of playing with my digital print-outs to give the experience of moving through an underwater world. After the backdrop and the initial triangular tower were created, I had a dream to make a cylindrical pool. The blue dots on the reclining sunbather reference John Baldassari, with my own addition of the blue triangle shape. Partly inspired by the profusion of architectural renderings since the destruction of the World Trade Center, I was driven to create new forms based on more feminine shapes than the usual masculine environments. The result is a digital vision of a world where grace and beauty can be celebrated unapologetically.

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HELEN GOLDEN

BROOKLYN; MIDNIGHT
36 inches x 36 inches

SIGNS OF INTELLIGENT LIFE
36 inches x 56 inches

I currently make art all the time, obsessively and happily and at the core of my being. I am compelled to create art. Regardless of the media I am using, the goals are always the same. I endeavor to create art that will go beyond surface representation to get to the spirit of the idea.

Although the inspiration for the images is often photographic in origin, the resulting art is mixed-media work that ultimately comes from the synthesis of new digital technology tools with traditional ones such as photography or etching and drawing. I often call this "tradigital" art.

Working with the computer and its associated sophisticated technologies has enabled and empowered me to explore myriad new ideas and to play, risk, and experiment more with them. As all media interact and collaborate with the artist, I find the serendipitous dialogue and the rich possibilities inspiring.

The deep satisfactions that I get from being the agent of the transformative process (making something new out of something else) lured me into recent explorations in which I have collected color and black-and-white newspaper photographs and then digitally collaged fragments taken from them.

In these four images, I used the computer to reassemble and abstract the photos so that they emerged beyond recognition, and so that the black and colored halftone dots of which they are composed became my "brushes" and elemental structural material. I fabricated new images from those components by layering, stretching, re-configuring, and re-coloring them. The source images are subsumed but remain as an armature for the newer abstracted ones that emerge.

I wanted to go beyond the surface representation of the "stories" that I started with, and I worked to get to the essence or the deeper defining aspects of the images. I used Altamira's Genuine Fractals software to take little bits of information and turn them into much larger re-sized images, and the software changed not only the dimensions but opened up and expanded previously almost unseen particles and pieces. Seeing those fragments enlarged my ideas about the original experience (which are already pre-filtered through the lens of a camera) and let me move in unexpected and unrestricted directions. That itself brought me closer to visually representing the feelings I have about the fragmentation of our experiences and the shifting patterns of our lives.

QUINTIN GONZALEZ

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GHOST OF TIME
27 inches x 31 inches

The narrative image in my work represents the marking of surface kinetics to create an impression of movement on the picture surface. The governing issue in my work is the analytic configuration of visual substance. I have done this through the rigorous building and development of an extensive vocabulary of traditional and electronic formal elements. This allows for an abstract art that uses repetition of both traditional and electronic forms to create vibrating compositional manipulations, designs, and distorted depictions of perspective. In turn, it forms motion on a two-dimensional pictorial space by deceiving the eye with a succession of visual puzzles.

I seek a visual symmetry where an image's explicit order may be created to unify vast and complementary elements of ever-evolving metamorphic structures. Multi-dimensional balance is the evoking of design that links technology to the mystical, thus the sacred. This imbues the visual arts with a means to be unfolded in a complete and ethereal way. These works emanate from both technological content and the natural world. This is the expression of an idea that is a physical manifestation from an internal response to existence. In these images, I have touched upon an art-making process that is as much talismanic as analytic. It is the relationship and exchange between artist, media, and tenet that creates the dynamics for individuality and vision.

The expression of structure and narrative entails a rigorous commitment to the most actual depiction of what my art is when it exists within the temper of technology's influence. The interaction of the computer with artistic expression represents the impact of the computer on aesthetics. This interplay between the analytical engine, traditional image making, and the poetic fuses the machine to the creation of beauty. I find the idea of digital aesthetics to be a unique and vibrant demonstration of the purpose of technology redefined. This new meaning of digital technology's function is one where the machine serves an esoteric, spiritual, and often irrational purpose. This topic in my work ultimately represents interplay between the role of the artist and the role of the machine, a theme that also denotes an investigation into the question: "From where can aesthetics originate?"

CELESTE JOY GREER
NICOLE RUBY
MARK YAMAMOTO

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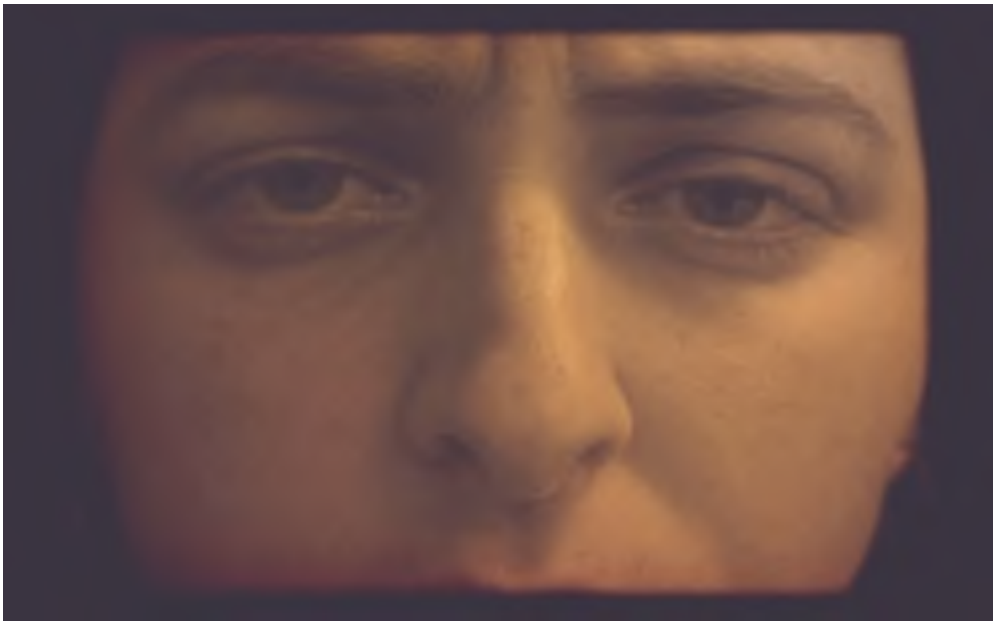

I STATEMENTS

Celeste Joy Greer (Southern California), Mark Yamamoto (Utah), and Nicole Ruby (Connecticut) come from diverse cultural backgrounds, yet they were united in this effort by their commitment to express the pain of self-loathing that is created through survival: a bitter irony, a cycle of self-abuse.

"I Statements" was written by Celeste Joy Greer as a 30-minute "stream of consciousness" that uses "I" to focus on revealing the individual emotions .

Celeste: "To live is not necessarily to be alive. I find I create pain in my life, so I will not think about how much I am suffering." Celeste experienced a plethora of death in her adolescence: car accidents, suicides, and murders. "As a teenager, I never really had a chance to mourn, or to feel at all. The pain was so removed. I'd learn about the deaths through third parties, or in the newspaper. My parents did not approve of a boy I dated, and I had never met his parents. When I read of his death in the paper, what could I do? I couldn't talk to my parents because they didn't like him. And I couldn't call his mother. I didn't even know her name, and if I had called what would I have said? 'I loved your son more than breathing, and he was a God damn selfish bastard for dying.'"

Over the course of numerous still and video shoots, the team found they were expressing latent pain, making their commitment to the project that much more intense and personal. Celeste: "It was like therapy. One of us would have an idea and would say that we should try this camera angle or that. Or: Let's have you doing this action because it reminds me of … And then we would say things to each other to try and express the intentions behind the words. Things you don't tell anybody, not even your therapist."

The team went through several "looks" and discarded hours of footage that they felt would have been demeaning to the words. Mark said: "We had this initial idea to use pictures of all the products (Pinesol, Glad Bags, etc.) but that was too 'kitsch,' too much like advertisement." Celeste said that some of the shots dealt with really personal feelings that she felt she could not do in front of Mark and Nicole, like the plastic bag. "I was really scared because the pain was personal. Mark offered to do it, but it just didn't work. So I put a camera on a tripod and filmed myself." Nicole recalls: "Celeste brought me the video camera and said: 'Here. Look at this.' And then she left the room. The shots were so completely scary." Mark said: "That stuff was so creepy, I put it in the way it was. But it just didn't work. It stopped being about the words and was all about shock value. And that wasn't what we wanted. So I tamed it down, made it more obscure, with double exposures and motion blur. I think Celeste was relieved. But she still closes her eyes during that sequence."

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GENE GREGER

MACKINTOSH DREAMTIME
37 inches x 30 inches

"Mackintosh Dreamtime" is inspired by the works of the architect Charles Rennie Mackintosh. This image is a stylized rendering of the entrance hall of Mackintosh's Windyhill house in Kilmacolm, Scotland. Now that the house is empty and just a museum, what might it look like late at night when the world becomes ethereal?

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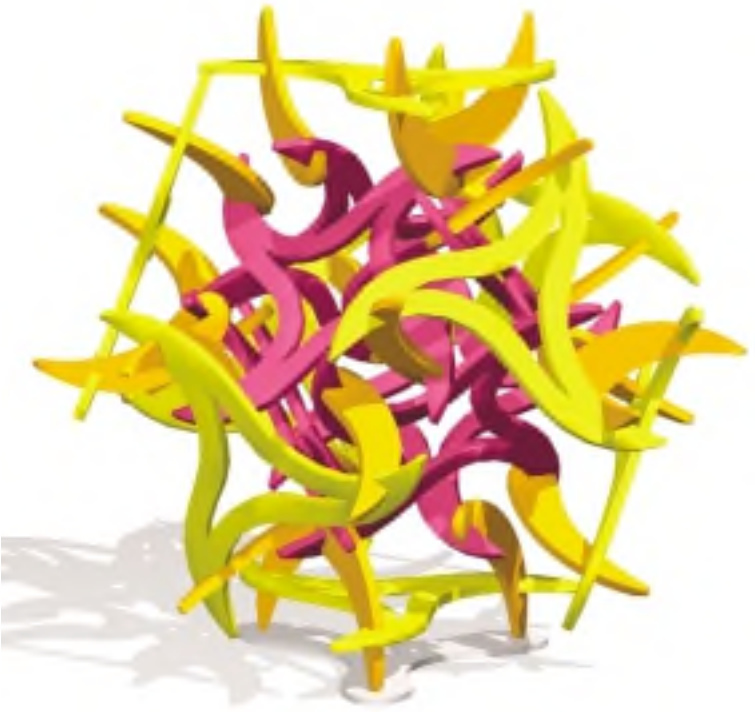

SUN STAR
12 inches x 12 inches x 12 inches

A cube and octahedron in their dual positions, given a twist and expressively formed.

I'm a digital sculptor, exploring art and mathematics by means of metal and technology. My work studies order in 3-space: inside and outside, the point at zero and the point at infinite distance, how the dimensional axes can be alike and different. It's a road map to how we live in the (apparently) Euclidean world.

I'm often asked whether these pieces are based on logic or intuition, and I must answer "both." My intuition is shot through with love of logic and order. Studying hasn't done it any harm either. I once worked with with a California psychic who would say: "My inner child has been around for years, and she knows all the tricks," and I'd say the same: my intuitive/creative germ has benefited from a lot of mathematical education.

My designs exist first as ideas, then as CAD models, and they enter the physical world as parts produced by various CAM processes. Finally, they're finished by hand assemblage, painting, chasing, and whatever craftsmanly methods are required. So the process moves backwards in history, from virtual idea to hand-finished metal. Considering the many technologies I use (laser etching, laser cutting, 3D printing, and so on) the actual experience is surprisingly analog: much of the time, I simply push things with my hands until they look right to my eyes.

CAD/CAM is a young, crude, difficult, under-used medium as I write this, but in it is the germ of an artistic sea change. It brings sculpture into the company of poetry and music, among the eternal media. Because the originals of my work are data, they transcend location, medium, and time. Ultimately (in my lifetime, I hope) art sculpture will be manufactured on demand, at the size, medium, and price point requested by the viewer. Far from threatening the value of sculptures by eroding their scarcity, I believe that this will allow them to reach their natural audience, so that they can be owned by everyone who likes them. We're standing at the Gutenberg threshold for sculpture: it will soon be affordable, ubiquitous, and, like everything else that shares those properties, digital.

Apart from the great historical moment, I hope you'll enjoy this piece for itself. I'm a full-time artist supported by sales, and in the end it is all about enjoyment. I found pleasure and tranquility in designing and making this object, and I hope you find pleasure and tranquility in observing it.

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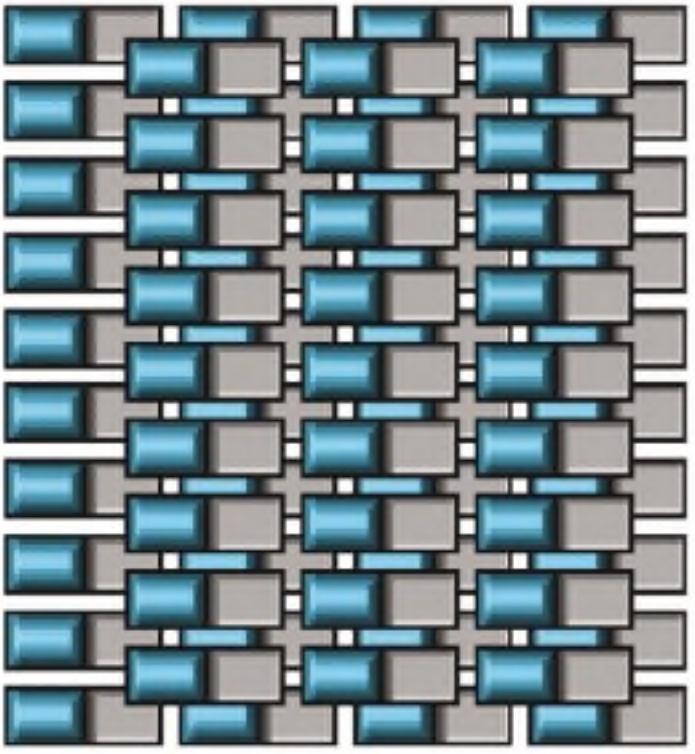
IAN GWILT



COMPLEX CONNECTIONS
90 centimeters x 97 centimeters

Digital abstractions – complex connections …

Referencing details from various graphical user interfaces, these prints form a series of works that abstract onscreen imagery and reverse the usual input-output process physical to digital, by taking from the digital and making physical. Taking inspiration from the inherently multiple (digital source material) and remediating this as a physical, one-off or limited edition print, the images address the notion of Walter Benjamin's "aura of the original" and examine the implications for originality and physical representation for artworks in a "post-real" digital age.

A dramatic change in scale and location (computer screen to gallery wall) is another important aspect of the work. Viewed out of context and away from the usual intimacy of the screen, the images can (still) trigger the memory of a familiar, ubiquitous monitor interface. The artworks begin to utilise these same visual elements to refer to the "human condition" applied to a digital context. Narratives and distinctively human comments are constructed from the visual building blocks of the digital environment, a place where we are increasingly spending our time and energies.

As the boundaries and reference points between physically and digitally grounded imagery become less defined, the duality of the interplay moves toward a more seamless self-referencing and continuous activity. A visual feedback loop, where the clues of originality become increasingly hard to differentiate and, perhaps, increasingly irrelevant. By extracting the real-world metaphors from the digital environment and taking them back into the physical world, the works become a kind of hyper-mediated simulacrum.

Ian Gwilt is an adjunct fellow in computer graphic design at Waikato University, School of Computing and Mathematical Sciences, New Zealand, and a visiting lecturer in visual communications at the University of Technology Sydney, Department of Design Architecture and Building, Australia.

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MELISSA HARSHMAN

BETTE DAVIS CHOCOLATE LAYER CAKE
17.5 inches x 16 inches

CILIEGE
16 inches x 16 inches

For the last five years, I have been exploring ways to incorporate digital images into traditional printmaking practices. Thus far, I have used serigraphy, Xerox transfer to traditional litho plates, Pronto industrial litho offset plates, and, most recently, photo positive and negative litho plates.

My current body of work, entitled "Word Play," was inspired by a digital portfolio I was invited to be in, called "Pictionary." The only requirement was that the image had to contain either a dictionary image or an encyclopedia image. I especially liked using the dictionary image and started my hunt for old dictionaries at flea markets and antique stores. Each of the images in "Word Play" began by scanning an image that appealed to me from an old dictionary. I have now expanded the source materials to items such as coloring books and a variety of children's workbooks. The image is then embellished and layered with other images, such as cookbook recipes, cakes, children's doodles, and other eclectic pictures to create new meanings and translations of familiar images. In this work, my focus has specifically been geared toward identity issues surrounding women. Some of the images are completely whimsical, while others have underlying political content. My goal was to create images that were aesthetically pleasing and conceptually significant, often playing off the meaning of the chosen image.

YU HASEGAWA-JOHNSON
HANK KACZMARSKI
LANCE CHONG
BENJAMIN SCHAEFFER
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HUMMINGBIRD: MULTI-REALITY ART

"Hummingbird" is a live, on-stage dance performance, in Los Angeles, of two people 2,000 miles apart. This film is the documentary record of the performance and the technology behind it.

Chih-Chun Huang dances live, on-stage at the University of Southern California, dressed as a wood nymph or a Shakespearian Puck. Cho-Ying Tsai is "dressed" only in computer animation; her physical body is 2,000 miles away in a motion-capture studio at the University of Illinois, Urbana-Champaign. Her movements are recreated in real time in Los Angeles by a fully articulated, animated avatar capable of morphing from baby to robot to fairy as the performance progresses. The avatar is projected on a custom silver sharktooth scrim, in what Ella Thompson (co-artistic director of the Internet2 performance event) described as "stellar use of layers of light, revealing a subtle local dancer in stage light under the luminescent projected avatar." Dancing to the piece "All My Hummingbirds Have Alibis" by Morton Subotnick, the performers dance over, under, and through one another. The live performer alternately jumps over the virtual performer, or, at will, passes through her, as if passing through a ghost on stage. Ann Doyle, Program Manager of Arts & Humanities for the Internet2 Consortium, described the Hummingbird performance as "the single most stunning marriage of art and technology that I have seen in my 17 years of working in information technology."

The goal for these performances is to combine all of the advantages of film (unlimited locations, unlimited view angles, freedom from restrictions of space and time) with all of the advantages of live performance (audience interaction, audience response, the awe that the audience feels when a performer can accomplish something really special in person on stage in front of them, and also, the nail-biting possibility of unexpected real-time failure). The goal is achieved through a unique combination of motion capture, real-time internet-enabled computer animation software, Internet2 data transmission, and custom display with live performance: an ensemble referred to as "Hummingbird technology."

Virtual reality is the ultimate expression of multimedia technology. "Hummingbird" is more than multimedia. It is multi-reality, a new model for delivery of art. Physical-world performers dance in the virtual world; virtual-world performers dance in the physical world; the two perform together without respect for limitations of space and time, fusing physical reality and virtual reality into a watershed audience experience.

www.firstsunrise.net/ArtsTech.html
www.isl.uiuc.edu/Events/internet_2.htm
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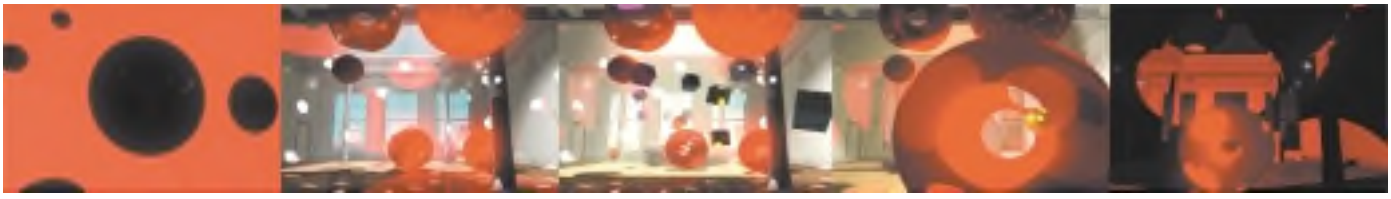

FILM STRIP: RED SPHERE LIGHT ROOM
14 inches x 49 inches

A linear collage of frames from the digital film "Red Sphere Light Room."

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JEAN-PIERRE HÉBERT

METAGON 128
20 inches x 16 inches

I have always admired calligraphy, sketches, drawings, etchings, for these works show so clearly not only the artist's hand, but also the eye, the mind guiding it. I have always loved drawings and loved to draw. Also, for 20 years my personal endeavor has been to create a new kind of drawing, where my mind or my eyes or my hand would no longer be a limit. Drawings that would not be constrained by fatigue, cramps, inaccuracies, distraction, or the limits of time. Drawings where new levels of imagination, patience, surprise, and desire would become possible.

To draw, some artists use their whole bodies, some their shoulders, their elbows, or their wrists. Some use five fingers, or one, or only their finger tips. I use only my brain to draw. To conceive and produce these drawings, I have studied the micro gestures that drawings are made of, and I have created and tamed tracing devices to handle them for me. As Victor Vasarely or Sol Lewitt instructed their helpers, I pair the creative concept behind each piece with the necessary instructions for the helpers I employ to produce it.

My helpers are tools and devices, not people. My helping devices are balls, magnets, pendulums, plotters, smart motors, spinners, syringes, teflon tubes, tops, water, and wires combined and driven by natural forces or software. I write the software myself, using many of the paradigms found in nature for creation of shapes. This is how my abstractions often inherit their organic character. My material is the line, the thread, the filament my tools can trace. My favorite medium is pen and ink or graphite on paper. Sometimes, I may trace these lines into sand, or wood, or etching plates; or I may align blobs, drips, drops, or use a brush. Often, I add hand marks of some sort.

My work abstracts inherent structures that underly nature at all scales to explore space and time. Its purpose is to stimulate the mind, elevate the spirit, quiet energies, and encourage meditation.

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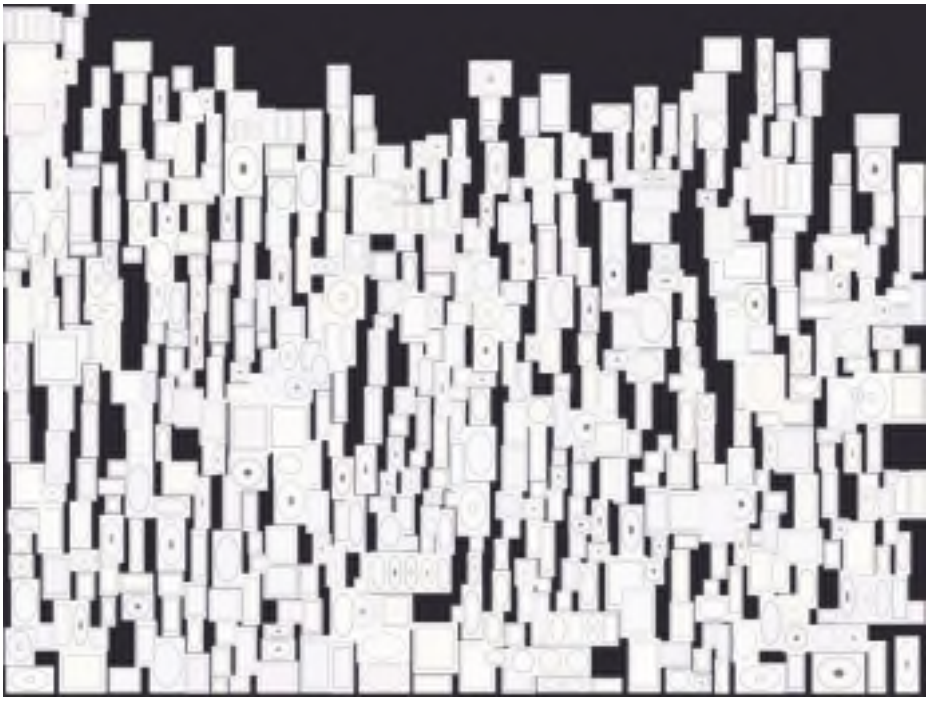
NATHAN HEMENWAY



TEETERINGS
40 inches x 30 inches

Artists' tools and outlets have changed drastically over the past century. Our options for delineating ideas have risen exponentially. Few techniques have escaped our repertoire of instruments. Surely, psychoanalysis, cinematography, engineering, and architecture have become acceptable modes of discourse. Presently, we witness incredible works pertaining to the fields of software engineering, bio-engineering, and the social sciences.

My work does not engage in a dialogue with these fields directly. Knowledge and technique and their application are not the aims. Rather, the aims are discovery, invention, and, most importantly, the search for the proper questions. The work must resonate and function within the realm of these technical phenomena. This relationship is two-fold. At one time, I am aroused by the classic, the chiaroscuro of traditional painting, the immediate tendency of brush against canvas. Another moment focuses on the cerebral stimulation found in the cognitive and computer sciences, specifically algorithm design and research as applied to pattern recognition and statistical processes.

This tendency for the artist and the technician to coincide is not new. It runs through our shared memories. It is as inherent in the invention of perspective, in the experimentation with and development of painting, as it is in the application of computers towards creative and digital endeavors. These developments do not surprise our curiosity. But they offer an opportunity to come closer to the muse we have all come to admire and pursue.

"Teeterings" is a series of studies created by an algorithm whose functionality is to promote an investigation of form. It is an iterative process of learning for both.

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LINDA HESH

SAFE

SUSPECT

SAFE

SUSPECT

JAN-SAFE AND SUSPECT *(above)*
LISA-SAFE AND SUSPECT *(above right)*
MIKE-SAFE AND SUSPECT *(right)*
16 inches x 20 inches

SAFE

SUSPECT

For the past few years, I have been working on a group of computer-altered photographs that start with a normal studio portrait as a base for each piece. The models are used as mannequins that I digitally embellish. I use this construct to portray aspects of our culture and not those of the individual subject.

Racial profiling is the subject of my "Safe/Suspect" series. The terrorist attacks of 9/11/01 heightened our awareness of ethnicity. Racists felt vindicated as their suspicions appeared to become reality. People were being detained and questioned for the color of their skin, an alignment of facial features, and a type of head wear. Our "melting pot" suddenly seemed to have a bad element that needed to be extracted. Conveniently, that element looked different enough that anyone could pick it out.

Digital technology allows me to experiment with my own reactions to appearance. I would not consider myself a racist, but I know I feel differently about the "Safe" on the left and the "Suspect" on the right. A change of skin tone and facial structure can lead to assumptions about place of birth, life history, motivations, and personality. The concept of photography as a depiction of reality is so strong that computer-altered images can be very confusing. We look from one image to another to try to decipher the mystery of what has been digitally altered. Through this process, our feeling about ethnic appearances may be revealed to ourselves, as we become aware of how little actually comprises a racial difference.

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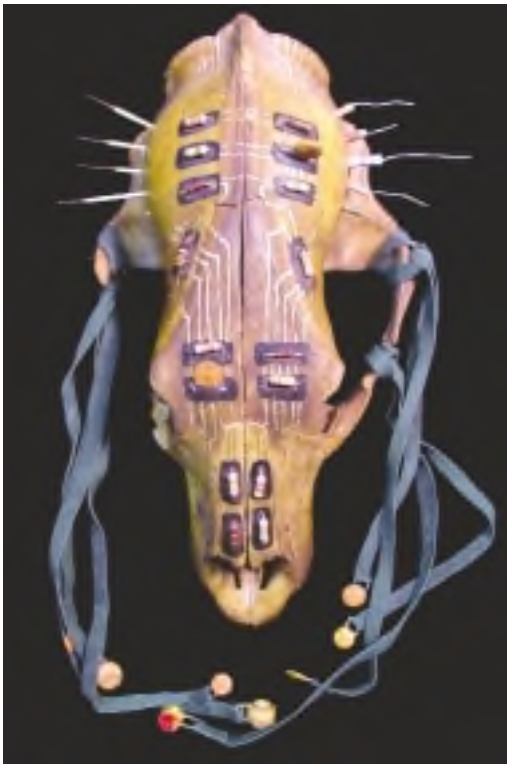
LAURA HEWITT



DIGITAL BEAR
11 inches x 7 inches

"Digital Bear" was created in response to my experience of describing bowhunting for bear in Arctic Alaska to non-hunting friends in New York City by email, complete with digital images. I was uncomfortable with the way the powerful, primal, and organic richness of my experiences was sanitized by digitalization; how hygienic, safe, and downright banal it became via email. This led to creating several pieces that combine the primal and electronic worlds.

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BEVERLEY HOOD

SELF-PORTRAITS (VERSION 1 - 3)
3 prints, 225 centimeters x 84 centimeters

"Self-portraits (version 1 - 3)" is a series of larger-than-life digital prints that reflect upon the tradition of portraiture (in particular, the artist's self-portrait) and explore the potential of this genre in the 21st century.

The work was created using 3D character-animation software, selected as a contemporary medium and logical progression of tools available for figurative representation and modeling. With these tools, three computer-generated portraits (version 1 - 3) were created. They begin with "sketched" version 1, which retains much of the software's default figure proportions, and become progressively more detailed and realistic in the subsequent versions. However authentically rendered, all the resulting figures retain a strongly synthetic nature. The portraits are reminiscent of computer-game characters, yet they present a progressive development toward a more "normal" body shape. This normality provides a level of contradiction to the work. Although the figures are very obviously computer generated, they do not present the stylised shapes normally associated with 3D characters (in computer games, etc). Rather than the normally centimeters-high computer-generated characters we encounter on screen, the large scale of the prints presents the viewer with figures of relative proportions to the human body. This uncomfortable enlargement is intensified by the figures being in fact slightly too large, provoking a somewhat intimidating presence.

Beverley Hood is an artist based in Edinburgh, Scotland who has worked with the web and interactive media since the mid 1990s, creating projects that examine the nature of communication, interaction, and presence in relation to technology. She has taken part in numerous residency programmes and worked with a range of international organisations to create projects including: c3, New Media Scotland, LUTCHI Research Centre, and Akiyoshidai International Art Village. From 2000 to 2001, she was the John Florent Stone Fellow at Edinburgh College of Art and in 2002 worked in Switzerland for six months as part of the International Residency Exchange Programme Basel. Her work has been exhibited in the UK, Europe, North America, and Japan. Recent shows include: Virtual Incarnations, Institute of Contemporary Art, London; Mediarama, Andalusian Center for Contemporary Art, Seville; INTERSTANDING 4 - end repeat, The Art Museum of Estonia, Tallinn. She is currently postgraduate coordinator for the MDes in Visual Communication at Edinburgh College of Art.

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DANIEL HOWER

SEA OF FISH 3, SUMMER 2002
39 inches x 53 inches

For the last 20-plus years, pouring my mind onto paper has been a daily necessity. Self expression is my never-ending passion and a means of therapy. Life is solitary and intense, and thus my art provides me escape, release, comprehension, and strength. It is a safehouse where I can express thoughts, emotions, fantasies, and reactions to life experiences without limitation, and thus harness the intensity within me.

My creativity is a tap that cannot be turned off. It's a gushing, angry, roaring river of ideas and energy. Endless shapes, textures, and constructs that I assemble into surreal, fantastic, weird, and abstract realms. My work defines me and brings order to my world.

In summary, my work is a reaction to my life experiences and to the world around me. Monsters and cartoon characters are my primary work, which are influenced by industrial and urban subject matter, pop culture, conflict, and science fiction. More recently, my work consists of electronic collages that allow me to explore visual qualities of more traditional media such as paint, pastel, and photography. The collages begin with small areas of my hand drawings scaled up very large and overlaid with textures, color, and photographic elements. In 2002, I evolved these collages even further and built them solely upon photography of man-made objects and structures.

Digital art has been my medium of choice since 1993, but my work always begins with my drawings.

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JASON HOWEY

THIS IS A BOTTLE
27 inches x 37 inches

This artwork is simplisitic in composition, in contrast to the code complexity that created the image. The code is the ASCII scene file that created the rendered image. This piece demonstrates that what we see in digital imagery is much more complex in creation that in visualization. The composition of this image consists of a hot-sauce bottle, a fork, and a plate rendered as realistically as possible, then represented by changing colors in the code.

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RUMIKO HOYA

KOKORONAGOMU ("THE HEART IS SOFTENED")

This piece tells the story of a youth transformed into an old person by modern society. Encountering a rice bowl with a traditional Japanese pattern, he uses his childlike imagination to heal his heart just a little bit. The warmth of the animation was created using Japanese paper and India ink, then After Effects and Premier on a Macintosh.

Director
Rumiko Hoya

Producer
Rumiko Hoya

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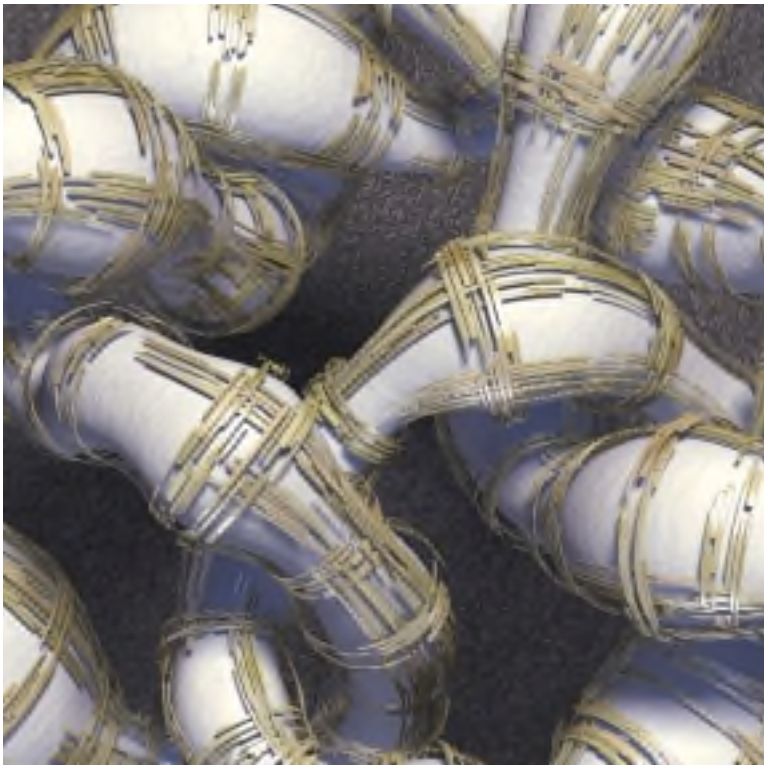
KENNETH A. HUFF



2002.7
41 inches x 41 inches x 1 inch

The iridescence of a beetle; the twisting surfaces of a wilting leaf; the spiral forms and sutures of a fossilized mollusk shell; fissures growing in drying mud; the arches, loops, and whorls of a fingerprint – all are examples of the natural forms and patterns that inspire my images. I am intrigued with combining ideas from a number of sources and the contrast and ambiguity arising from those combinations.

I often include many objects in my images – all similar in form, yet each unique in its details. Those details of color and texture mimic the level of physical detail found in the natural world and create an illusion of reality even while the viewer is confronted with the practical knowledge that the objects illustrated do not exist.

I recently met a scientist who is investigating the micro-structures formed by controlled sintering of ceramic powders. Sintering involves heating, but not melting, of materials to form a coherent mass. Electron micrographs of his research served as the initial inspiration for a series that incorporates numerous small plates, either entirely representing a surface or coating portions of a surface, while at the same time conforming to the contours of the surface.

The major form in "2002.7" is based on an idealized mathematical knot.

The gold forms were constructed using a custom tool that builds the forms, or plates, directly on a given surface.

This image was completed during a working-artist residency at SIGGRAPH 2002.

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EUNJUNG HWANG

MONSTERS OF TIME

The world I encounter in my memory is pictorial and cryptic. I run into multifarious images, odd beings, terrors, and ghosts there. Everything I've beheld in this world has been compiled in a huge usable mental catalogue of images, and I strive for an encyclopedic achievement there. I'd like to be a mirror reflecting the cause of all things, the personification of the world's memory. To reveal the enigma of the memory pictures, I dare to descend into an everlasting image-producing abyss in my memory and explore the undercurrent with a fluoroscopic vision. My works are "thought pictures" or "puzzle pictures" from the abyss. They are questions rather than answers.

In my private, unrecognized pantheon of dreams, I met the monsters of time. Feeling empathy with them, I joined them in their symbolic feast.

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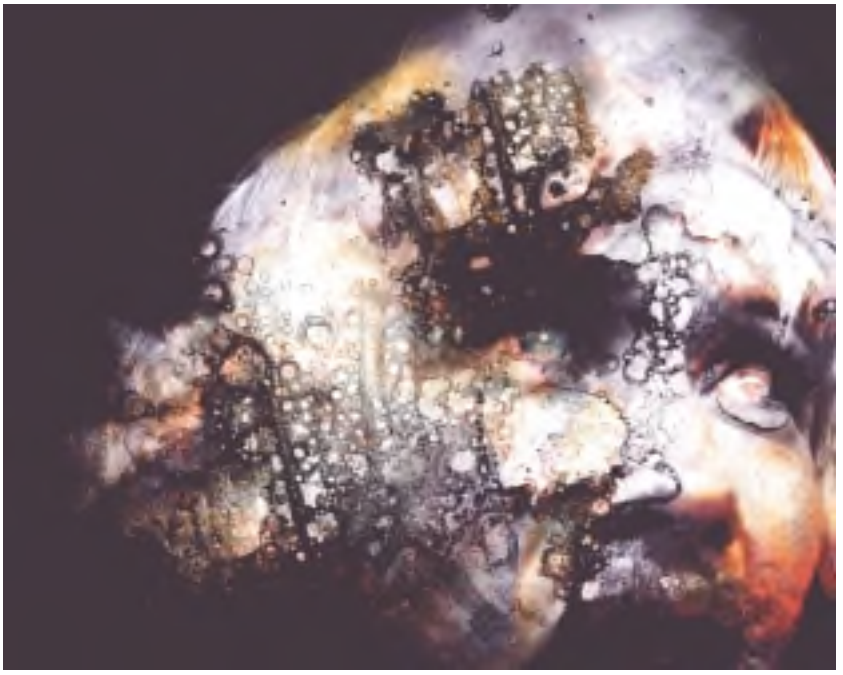

SIREN'S CALL
16 inches x 20 inches

The Immutability of Transformation

In "Leaves of Grass," Walt Whitman wrote: "The law of promotion and transformation cannot be eluded." This idea is explored in David Hylton's haunting digital paintings. His work challenges viewers to consider how they may instigate, react to, or remain oblivious to the inexorable effects of change and transformation upon their existence.

It depicts transformation with surreal imagery that vibrates with dramatic, deeply saturated hues. His work captures and heightens the tensions born of the process of transformation. Some of his paintings have a mystical quality that suggests a divine and positive influence upon transformation. Others present the horror of unexpected, uncontrollable evolution.

"Siren's Call" is a portrait of a woman whose alluring call is suggested by her haunting expression. She is both cool and warm, and is composed of organic elements. Unlike her mythical forebears, this enigmatic siren inspires new discoveries and exploration.

Hylton's work evokes the isolation of modern men and women whose struggle to make sense of daily inundation with information blinds them to the deeper forces at work in their lives.

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MASA INAKAGE

UTOPIAN PARADISE
84 cm x 133 cm framed

This work depicts tranquility in the forest of a utopian paradise, where we find a very peaceful and silent moment, isolating ourselves from the overloaded information society and stressfully twisted human relationships. One can encounter the utopian paradise in various situations such as dreaming in the night or actually walking in the forest. As one detaches one's feeling from reality, one can start to hear one's own heartbeat and everything starts to feel very personal. The utopian paradise is the mirror of one's soul.

I have been pursuing the expression of abstract realism: an integration of surrealism and abstract expression. The surrealistic component in the work provides the viewer with hints and guides, while the abstract component gives the viewer a freedom for imagination. In this work, the color and composition hint at the peaceful nature, and the reflective surfaces imply the mirror of one's internal state of mind.

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CHRIS S. JOHNSON

TECHNODARHMA
12 inches x 18 inches

My current work looks at patterns. In society, ornamentation, color, and life repeat in many different ways. Technology has added to the repetition by reducing the knowledge down to 1s and 0s.

Additional information may be found at www.csj2.com

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KATE JOHNSON

BETWEEN THOUGHTS

"Between Thoughts" is a multi-layered stream-of-consciousness exploration of the myriad of impressions that can course through us in the creative moment. While working in collaboration with celebrated Los Angeles choreographer Loretta Livingston, I became fascinated with the impulses and movements of dancers working in an improvisatory style. Watching them and their rapid movements created in an instant and then immediately evolving into other physical expressions and rhythms, I began to see relationships in time, the nature of what really thinks and creates, and how our mind constantly weaves glimpses of past, present, and future visions, dreams, fears, losses, whispers, and echos while simultaneously wrapped in a present occupation. What resulted is a visual poem on art making that traces through sensual, natural landscapes, elements, disembodied movements, and surreal imagery keyed to a hypnotic pulse.

I have always been deeply interested in ideas about perception and states of mind, and have explored them through the marriage of nature and technology. In this work, I wanted to create textual layering, a meditation in which neural pathways fire before the mind realizes, and yet the metaphors in the imagery are slowed to the pace of a deep memory. The cycle of creation therefore begins before the first thought ends.

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BAHMAN KALANTARI

SUMMER
21 inches x 21 inches

This image was produced with polynomiography, which I have defined as: "the art and science of visualization in approximation of zeros of complex polynomials, via fractal and non-fractal images, created using the mathematical convergence properties of iteration functions." An individual image is called a "polynomiograph." Working with polynomiography software is comparable to working with a camera or a musical instrument. Through practice, one can learn to produce the most exquisite and complex patterns. These designs, at their best, are analogous to the most sophisticated human designs. The intricate patterning of Islamic art, the composition of Oriental carpets, or the elegant design of French fabrics come to mind as very similar to the symmetrical, repetitive, and orderly graphic images produced through polynomiography. But polynomiographic designs can also be irregular, asymmetric, and non-recurring, suggesting parallels with the work of artists associated with abstract expressionism and minimalism. Polynomiography could be used in classrooms for teaching art or mathematics at every level, from elementary school to university, as well as in both professional and non-professional situations. Its creative possibilities could enhance the professional art curriculum.

The "polynomiographer" can create an infinite variety of designs by employing an infinite variety of iteration functions. The polynomiographer then may go through the same kind of decision making as the photographer: changing scale, isolating parts of the image, enlarging or reducing, adjusting values and color until the polynomiograph is resolved into a visually satisfying entity. Like a photographer, a polynomiographer can learn to create images that are esthetically beautiful and individual, with or without the knowledge of mathematics or art. Like an artist and a painter, a polynomiographer can be creative in coloration and composition of images. Like a camera, or a painting brush, polynomiography software can be made simple enough that even a child can learn to operate it.

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BONNIE KANE

POPPIES
29 inches x 72.5 inches
Silk crepe de chine

SPROUTS
29 inches x 72.5 inches
Silk crepe de chine

Using the computer for both commercial and experimental painting, I had long been interested in the possibilities of large digital printing. In visual art, size does matter, and a computer screen has its limitations.

I began with large-format prints when the technology became accessible and reasonably affordable in 1994, culminating in 1996, when I had the opportunity to produce a series of 8-foot-long mounted pieces. Although I was very happy with the imagery itself, the medium was problematic: storage, transportation, and installation were issues. I was seeking a more user friendly form in which to display the art.

Around 1998, my friend and collaborator, David Kushner of Supersample Corporation, New York City, began experiments with digital printing on silk. I immediately began thinking about the Japanese tradition of scrolls as a possible way to work.

A few early pieces were attempted, but it was not until the winter of 2001 that technology, opportunity, and process all came together, and we began to produce the first body of tapestry work. I created the computer imagery and submitted the files to David. Each painting was dyed into specially prepared fabric and then hand-crafted into the finished tapestry.

This was the medium I was waiting for! As a painter, I am interested in color, mood, texture, movement, and light. The paintings are emotional, and they slowly reveal different levels of subtlety. Working on silk provides a richness of texture, interacting with the light of the room. Being light in weight, the pieces flutter gently with the air currents present in the room and can be hung suspended freely from a ceiling or flat against the wall. The installation of the pieces affects their transparency and their movement.

Blending the ancient tradition of silk scrolls with modern technology is also very exciting. The pieces are still, but alive; referencing history, while being thoroughly modern.

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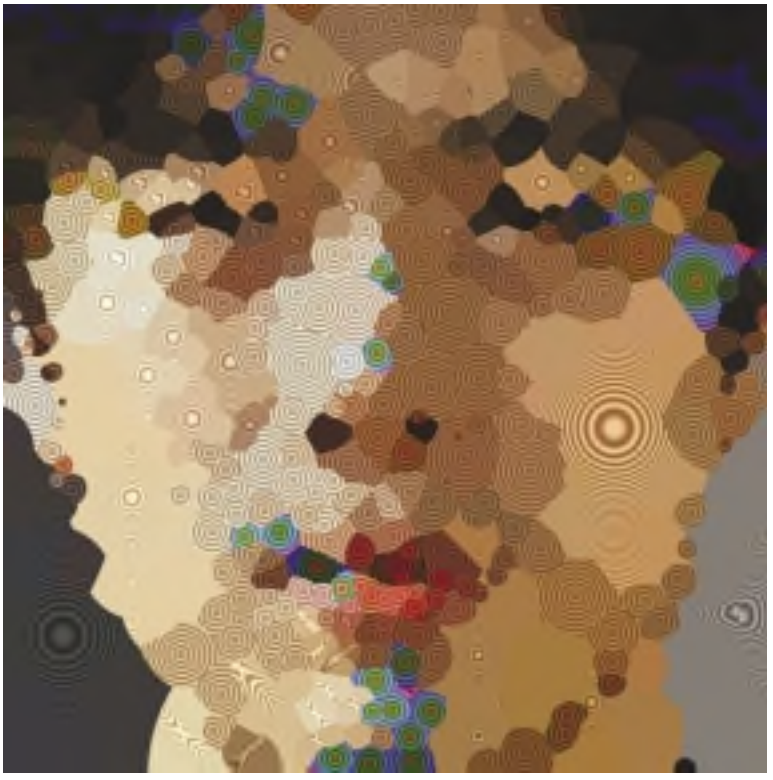

MUTUALLY QUOTED ALGORITHMS - CIRCLE FACE
1040 millimeters x 1040 millimeters

This artwork is one of a series, "Mutually Quoted Algorithms," created by Atsushi Kasao, Hitoshi Akayama, Naoto Hikawa, Mao Makino, and Yuichi Kobayashi.

In general, artists consciously or unconsciously quote many things from others' works to create their original artworks. However, we have not found CG artworks that quote other's CG-creation algorithms. We concluded that if artists had a CG creation tool that can quote others' algorithms, they could create many types of expressions and make CG creation more fun.

For example, we have never seen CG artworks that quote algorithmically created works – what we call non-photorealistic rendering (NPR) algorithms. So we created CG artworks that quote NPR algorithms by using Synergistic Image Creator (SIC), our original algorithmic-image-expression tool. I used this tool to create "Sapporo," which was presented by the SIGGRAPH 2002 Art Gallery. The main feature of SIC is that modification of a few parts of an SIC algorithm can create totally different expressions.

The "Mutually Quoted Algorithms" series was completed in three phases. First, we decided that the common motif of the artworks was "human," then each member of the creative group created an appropriate "human" SIC algorithm. Second, we each made sample artworks with our own algorithms. Third, each artist created final artwork by quoting other members' CG algorithms and not sample artworks. The results showed many types of CG artworks that express something between abstract and representational art.

More information on SIC: www.dsn.t-kougei.ac.jp/cp/sic

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PARAS KAUL

ALIEN ENCOUNTER
11 inches x 14 inches

Using Mississippi swamp imagery as a texture map on the inside of a sphere, Paras Kaul built a 3D model of a generic body. In "Alien Encounter," an alien being assists by enabling both rebirth and transformation to occur. The attempt was to break down the hard edges of digital imaging and create an atmospheric, conceptual depiction of the artist's experiences.

Paras Kaul (www.brainwavechick.com) is a neural artist/researcher, multimedia composer, web coordinator, and educator at George Mason University. She began her art career as a photographer, an experience that provided a natural transition to digital image making. After completing undergraduate and graduate studies in photography, she began MFA studies at the School of the Art Institute of Chicago. Before advancing to digital imaging, she studied photography with Ken Josephson, who was chair of the photography department at the Art Institute.

After a semester of photographic study, she continued her graduate studies in computer animation. Working with Phil Morton at the Art Institute, she had the opportunity to interact with Copper Giloth, Jane Veeder, and Dan Sandin. The influence of these Chicago artists opened the door to her later career in computer graphics and animation. While completing graduate studies, she worked as an apprentice artist at Real Time Design in Chicago. Upon completion of her MFA degree, she went to New York and worked for Jeff Kleiser at Digital Effects. Later she moved to Hollywood and became an artist in residence at Omnibus, Inc. at Paramount Studios.

During a period of upheavals in the computer industry in the mid 1980s, she began to focus on academia, since she had originally planned to be an educator in the arts. She began teaching computer graphics at California State University, Los Angeles. Additionally, she had opportunities to lecture at UCLA and UC Santa Barbara. In 1997, she moved to Mississippi and became an assistant professor in a graduate program in electronic visualization at Mississippi State University. There she had the opportunity to learn Alias|Wavefront's Maya 3D software. Working with a music composer at the university, she produced a computer animation called "Raw Data." The image presented at SIGGRAPH 2003 was later created from the digital data used in the animation.

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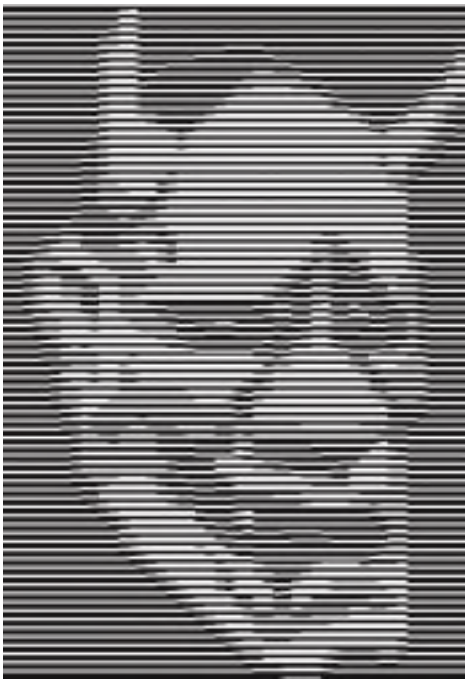

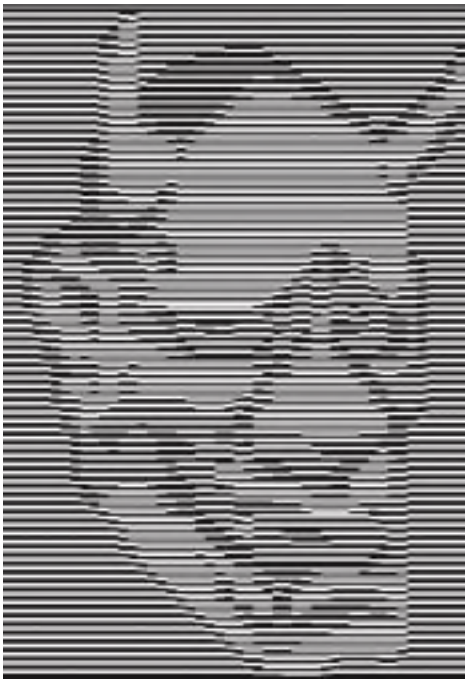

HANNYA

The Hannya is the Japanese traditional mask for Noh, a well-known dance similar to Japanese Kabuki. This work presents an illusion of stereoscopic images. The image data are derived from an ancient mask.

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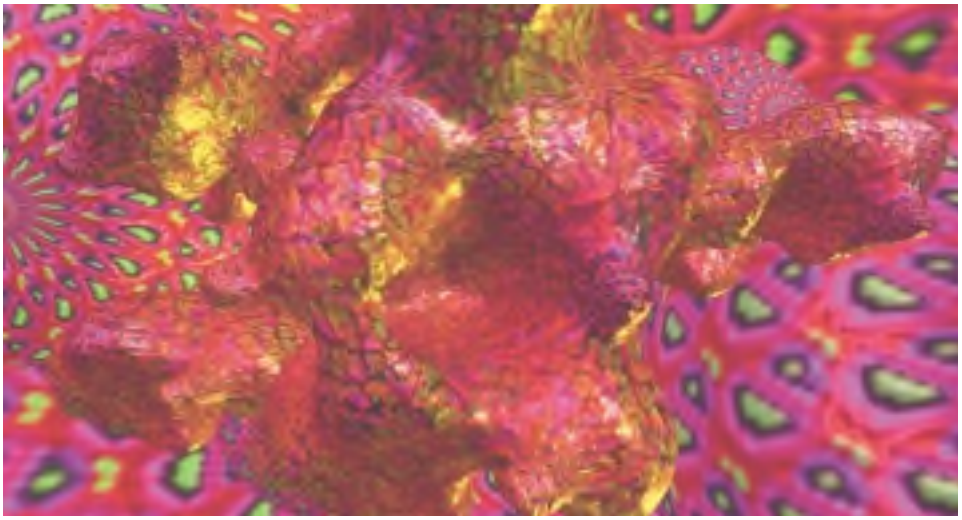

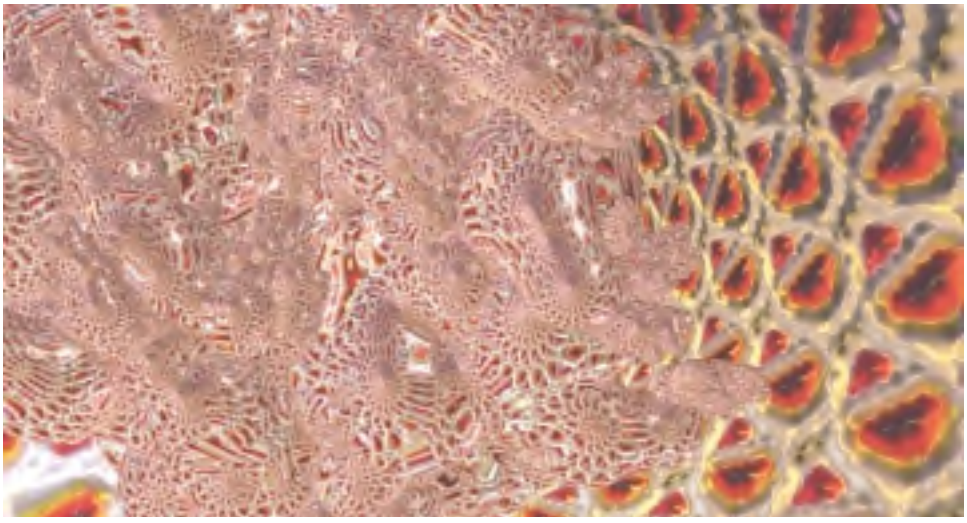

CEREBRAN

"Cerebran" is a stereoscopic HDTV animation. It expresses the depth of our perception and the depth of our bodies, neurons, and brains. This is the first HDTV artwork produced in Japan. It has been exhibited at the Tokyo Metropolitan Museum of Photography, Art Tower Mito, and the NHK TV Studio.

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JOHN-DAN KEY

UNDER CONSTRUCTION
34 inches x 42 inches

THE MEANING OF PI
34 inches x 42 inches

REFINEMENT
34 inches x 42 inches

I paint to make the world a better, more beautiful place. Specifically, I paint to show the beauty of interrelation. I juxtapose line and shape to relate them strongly with one another, to forge the separate elements into a dynamic, inter-working whole.

I build each painting to mold a certain feeling, to create a certain energy. It is an energy of pressure, of potential, a latent energy like a compressed spring or the excitement of a crowd. I choose the lines I draw and the shapes I paint in order to produce and heighten this energy.

As someone who has always stood apart, observing the world as though from the outside, I sense strongly the ties that exist between the members of humankind and the cosmos in which they dwell. I choose to draw out and accentuate these relationships in my work, in symbolic form. My hope is that someday I may so completely portray these relationships that by merely painting I will bind people closer to others and to the world around them.

John-Dan Key is a former writer and computer programmer. He has been actively painting since 1996. He uses numerous programs in his work, including Corel Draw, Photo Paint, Macromedia Flash, and others of his own design. He has shown in numerous galleries and includes among his honors being selected as a presenter for the annual SIGGRAPH conference. He lives and works in rural Washington state.

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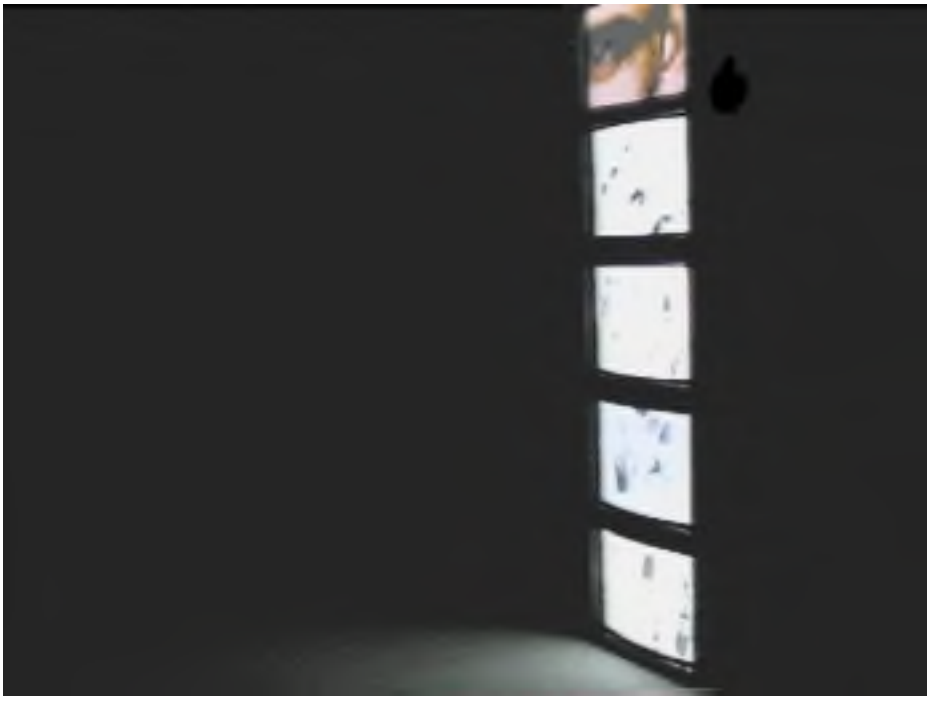

AFTERIMAGES

The previous generation lived in what could be called the "television culture," and the next generation will live in a "computer culture." My generation lives in an era between the two. Television and computer media are among the most significant inventions of what could be called the modern information system; however, we are often unaware of the effects these media have on our consciousness. "Afterimages" raises questions about the influences and effects of television and the computer on the cultures they create.

The sculpture consists of five stacked monitors: four monitors showing digital body animation and the top monitor acting as the body's eyes and mind, projecting their point of view under the influence of the television and computer cultures. My intent is to represent the influence of these cultures on the audience's bodies and brains through the electronic body in the monitor screens and the video images in the top monitor.

The intent is to suggest the loss of our natural minds to technologies and machines. New technologies influence our minds slowly; we often cannot detect the effects. "Afterimages" captures the idea that we do not easily realize the loss of our minds.

"Afterimages" is concerned with the matter of creativity, which has been regarded as the main permanent power of artists since the Stone Age. However, technology is affecting the natural human brain and creativity, and future artists may lose their natural creativity. The sculpture is a caution to all people, including artists, who use technology carelessly.

The present generation is confused because we are living between television culture and computer culture, but only the present generation can recognize the problems associated with the technology. "Afterimages" suggests the invisible effects of digital technology and television technology, effects that presently have no name.

CHUNG KYU KIM

NATURE IN MIND

People in our society need to build a stronger relationship with nature. People are born in "natural mind" but, as we grow up on the earth, many people lose this. Our loss is caused by digital machines, artificial gray buildings, and so on. While much of our time is spent immersed in computer-chip cities and concrete jungles, much more of our time is spent day-dreaming of relaxing in nature. In this work, I depict a man who lives in a city. He is of the current generation, and lives in the present time. Often, he misses the world of nature, as he works to earn his living.

I suggest that keeping our "natural mind" is important as we live within a digital culture. We can succeed as a digital generation, if we do not lose our natural minds and thoughts.

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HYUNSUK KIM

INCLINATION OF TIME
12 feet x 10 feet each

"Inclination of Time" consists of two photos that metamorphose over time. Time is an incognizable movement with consistent intention, while photography is a tool to immortalize the moment of time. I attempted to reconcile time with photography in this particular work. I attempted to revitalize the frozen time captured in the photos by establishing the lost continuity between two photographs. The baby in the first photograph changes to a father, and the same baby in the second photograph changes to a mother. The changes in the photographs are nearly undetectable, since the metamorphoses in the photos take place slowly over a long period of time. The changes in the photos are intended to be as slow as possible, to recreate the incognizable nature of time. Time is perceived as a linear or circular movement in consciousness and subconsciousness, but time reveals itself in continuance. In this work, I tried to show both linear and circular movements of time in perception.

First, time is perceived as past, present, and future in human consciousness. It is said that past lies in memories, present is intuitively perceived in mind, and future is glimpsed in expectations. The linear movement of time in past, present, and future is cognized by the intuitive association of mind in consciousness. In my work, the fact that a baby becomes an adult in the photos shows the linear inclination of time. It also shows the substance of human beings as "becoming," bounded by time. Secondly, because of both the inclination of memories to expectations and the inclination of expectations to memories, the inclination of time can also be perceived as circular in consciousness. In subconsciousness, past, present, and future coexist as in dreams. Time is not linear but circular, or coexistent in subconsciousness. For example, a couple can't become parents without a baby of their own. That is to say, having a baby affirms being parents. When a baby metamorphoses to a mother and a father in these photos, an effect asserts or dictates a cause, in a sense. A baby in the photos is repetitive memories of the parents' childhood at the same time an adult in the photos is the future that the baby expects to be. Also, every frame is morphed with parts of the other frames, so,in a way, time within this work is coexistent. I wanted to let the inclination of time reveal itself in its incognizable continuance.

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GREG KLAMT

A FORBIDDEN LOVE
25 inches x 30 inches

I have been integrating traditional media with digital technology since 1982. I blend photography, drawings, paintings, etchings, found objects, and other resources with digital painting techniques in an original style I call Techno-Organic PhotoSurrealism. My goal is to create an organic feel by combining traditional techniques and materials with technology to integrate these varied resources. The computer allows me flexibility and power available in no other medium.

My greatest inspiration is nature. I am fascinated with form and texture, both natural and man-made. I study and photograph rocks, sand, plants, old paint peeling off of walls, anything that might feed my creativity, my image library, and my understanding of natural form and color. I also create mixed-media paintings, marbling, and other abstract textural elements that I can incorporate. By combining these resources with my layering techniques, I have created a wide variety of textures to use in my work and to inspire images that tell stories.

Influenced by surrealism and fantasy art, classical paintings, graphic design, and illustrative styles, I seek to investigate realms beyond normal consciousness. There are amazing untapped mysteries in the twilight of the subconscious and the infinite depths of the imagination. I like to think of my subject matter as "Possible Moments in Improbable Worlds."

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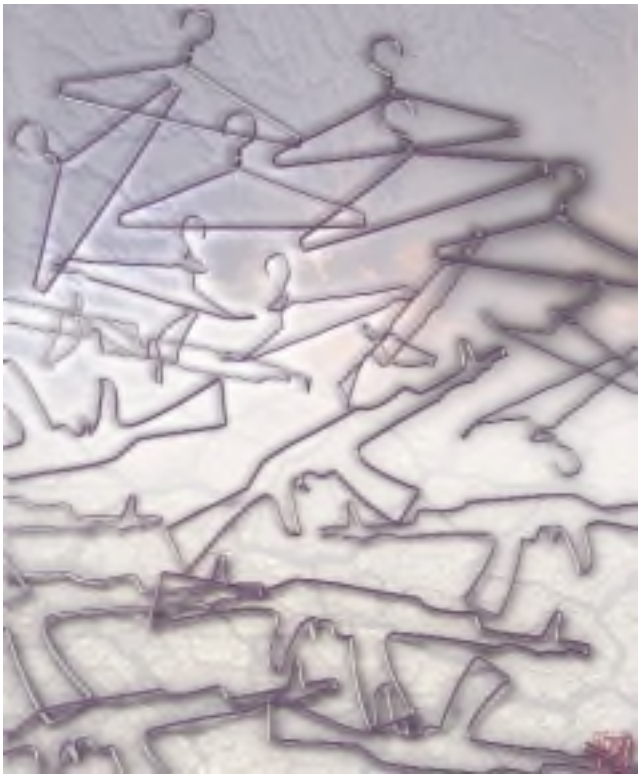

FAREWELL TO ARMS
28 inches x 34 inches each

This image is part of an ongoing series of graphics called "Strange Continuum." All the images in the series were made using digital, mostly 3D computer graphics tools. They feature a variety of thematically and visually different computer-generated compositions/environments connected by an overall mood that is somewhat bizarre and dislocated. They may be seen as building blocks in a small but constantly expanding bubble universe. Three-dimensional design and graphic design use different languages of expression. This work can also be seen as my attempt to connect them in dialogue.

I grew up in a country that was eventually broken up into many pieces by a civil war. As a consequence, during the 1990s, I lived in many countries in Western Europe, moving in and out as the financial and legal situation changed, and then, at the end of the 90s, I immigrated to the USA. During that time, I was making a series of digital artworks, and almost every single one of them was made in a different country under different circumstances.

Looking back at those years from this considerable distance in space and time, I realize that maybe the only continuous thread I have from that time are these graphics which, it seems to me, exist in some kind of vacuum. However, to my surprise, that purging vacuum of these years may be leading me to something valuable. Something quite hard to get back once it is taken away from you. A sense of belonging.

The beauty of graphic art lies in its ability to convey a message while leaving room for interpretation.

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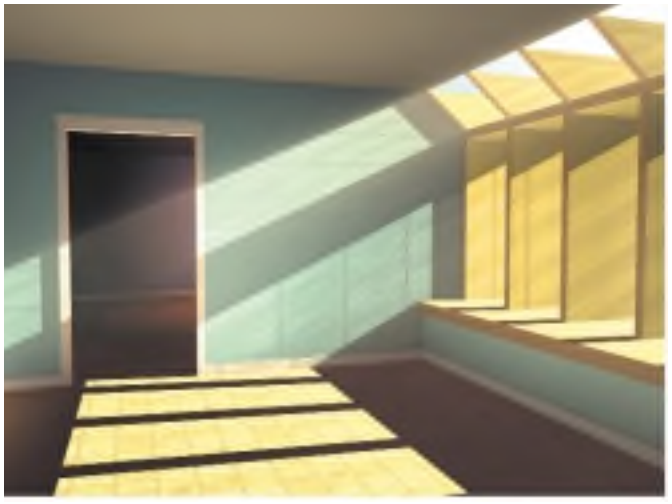
JOEL KNOCKE



REPRISE: JOHARI'S WINDOW
24 inches x 18 inches

REPRISE: PASSES 1
24 inches x 18 inches

I'm working on a series titled "Reprise," in which I use some of my old oil paintings as the basis for digital 3D images. I model, surface, and light the scenes to match the original paintings as closely as possible, then make Lightjet prints. I'm also working on an animated flythrough of the spaces I create.

These pieces were modeled and rendered in Newtek Lightwave 3D, with help from Adobe Photoshop for texture design and image manipulation.

I received a BFA in drawing and painting from Wichita State University and a MFA in painting from the University of Illinois at Urbana-Champaign, where I also started working with computer graphics. I am currently an associate professor in the visual art and technology department, San Antonio College, teaching 2D and 3D animation.

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VIKTOR KOEN




DAMSELS IN ARMOR
DAMSEL NO.3 / DAMSEL NO.6 / DAMSEL NO.15 / DAMSEL NO.19
24 inches x 35 inches

Traditional war memorials have adhered to a strict code of remembrance: commemorate the dead by distancing death and achieve public consensus through application of a conservative aesthetic. If truth is the casualty in these classic depictions, a greater good remains permanently enshrined: consolation for the bereaved and elevation of the fallen to cult status. Society needs to rally youth to fight future wars, and these monumental odes to martyrdom provide the necessary inspiration.

"Damsels in Armor" is a civics lesson of another order: 24 unsanctioned monuments testifying to war's truly brutal cost. Rising above the detritus of battle, these damsels bear witness to the inevitable price of engagement; no suit of armor can shield them from the acid scars of battle, now permanently etched on their once-beautiful faces. Triumph's glory has proved to be transient. Corrosion defaces, distorts, reveals. This gallery of figures forces us to acknowledge a reality understandably edited for commissioned monuments: every victory is Pyrrhic.

A fusion of sculptural elements, weapons, and armor, these "victory" compositions have historical roots in works like "Nike of Samothrace" and DeLacroix's celebrated painting "Liberty Leading the People." Elements and details were juxtaposed digitally for a seamless, almost painterly finish, traditional in its look, if unorthodox in content. The damsels' faces were selected from 1940s and 1950s commercial photography, another era when truth was glamorized for mass consumption. Original photography of armaments was done at the Arms and Armor Collection of the Metropolitan Museum of Art, the New York City Police Museum, and the War Museum of Greece.

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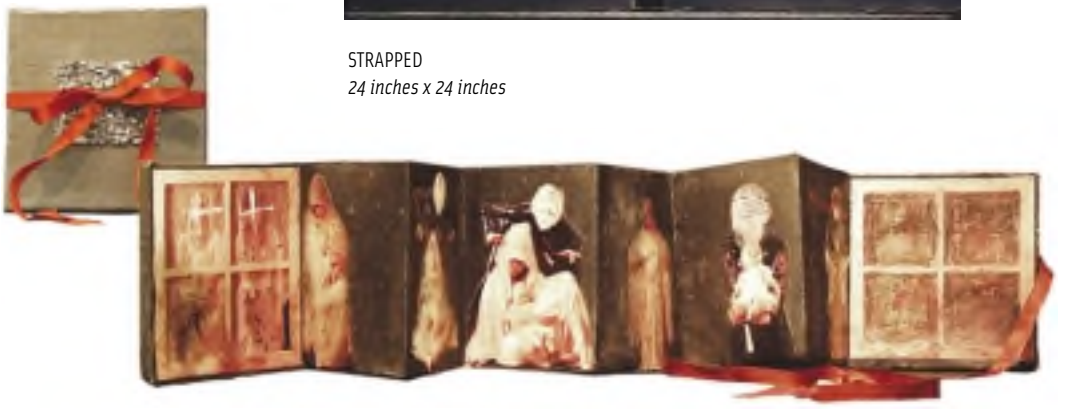
DOROTHY KRAUSE

STRAPPED
24 inches x 24 inches



VENGEANCE IS MINE
4.5 inches x 4.5 inches closed; 4.5 inches x 36 inches open

A painter by training and collage-maker by nature, I began my experimental printmaking with reprographic machines. Since being introduced to computers in the late 1960s while working on my doctorate at Penn State, I have combined traditional and digital media. My work embeds archetypal symbols and fragments of image and text in multiple layers of texture and meaning. It combines the humblest of materials (plaster, tar, wax, and pigment) with the latest in technology to evoke the past and herald the future.

By focusing on timeless personal and universal issues (hopes and fears, wishes, lies and dreams, immortality and transience), I challenge myself and the viewer to look beyond the surface to see what depths are hidden. I imbue my work with the quality of allegory, not to be factual, but to be truthful in character. There are no prescriptive messages, but the montaged images invite subversive readings. By questioning the issue of power and how it is implemented, the dignity of the individual and the strength of the spirit are celebrated in my work.

These pieces began with a series of photographs taken of twin performance artists Emily and Abigail Taylor. They were done for a solo exhibition, Dorothy Simpson Krause: body + soul, at the Danforth Museum of Art in the spring of 2003. The series includes several groupings of images and a book. The book, *Vengeance is Mine*, is an accordion-format collage of digital prints on black Arches cover stock coated with encaustic and pigment. It has a cover of wood wrapped in lead with ribbon and silver ornament.

"Strapped," is a UV-cured inkjet print of 3/4-inch polycarbonate with mirror and metal strapping.

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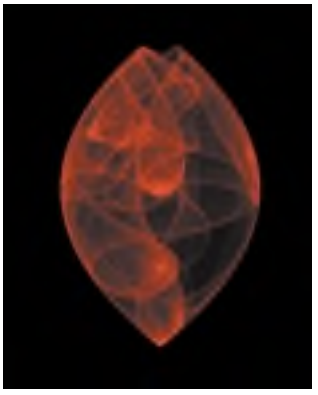

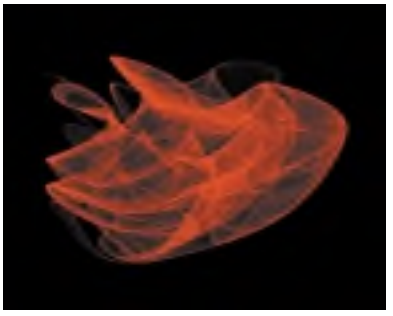

DIMENSION OF TIME IN STRANGE ATTRACTORS
20 inches x 28 inches and 28 inches x 20 inches

Strange attractors generate repeating point patterns in two-dimensional space while their coloring algorithms, which represent time, produce images of coherent three-dimensional forms. The third dimension is determined by the perception of the viewer coupled with the created intent. The forms include a ghostly view into their imaginary core. The swirling patterns gently display possible subsurface structures that cannot be logically followed through any dimension. Dimensions become ambiguous as perception attempts to combine the individual points so they complete a whole.

Many of these are inspired from natural forces such as wind and water, or earthen formations. The stone series explores the possible subsurface patterns in nature that are not visible to us, or the fall and rise of water or some identifiable material or organism moving in indeterminable ways.

All of these images were created algorithmically using a series of related strange-attractor equations with coloring schemes that bring out the time element of the computational process. Each was developed by the computation of 12-59 million points.

The complete series can be found at: www.netcom.com/~bitart

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MITCHELL KRIEGMAN

SIZZLING KUNG FU MICE

Three mice struggle to escape a cat that pursues them through a Chinese restaurant. The mice fight their enemy with chopsticks, toothpicks, and after-dinner mints, proving themselves to their kung-fu master in a surprising twist. This HP/24P short was realized using Shadow Projects' patented Shadowmation, a unique animated process that combines CGI-enhanced flexible animatronics with computer-generated animation.

Producer
Mitchell Kriegman

Director
Mitchell Kriegman

Contributors
Bruce Logan, Chris Renaud, Paul Andrejco, William "Jens" Scott

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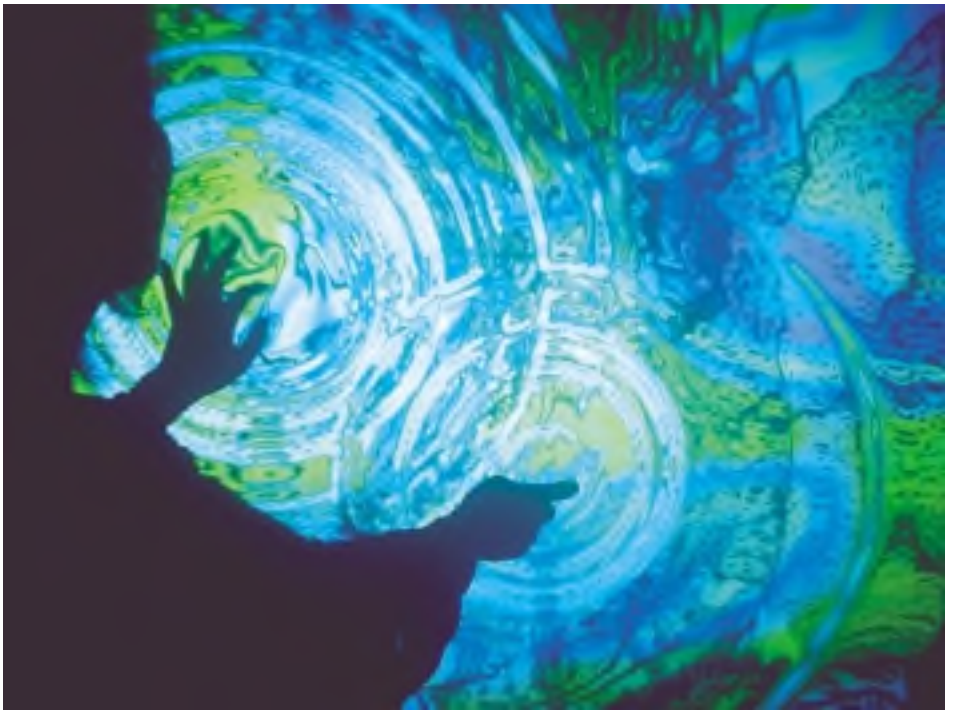

WAVES_H
1,300 millimeters x 900 millimeters x 1,800 millimeters

This work is a new type of a interactive sculpture. Viewers can create a ripple by interacting with the the large touch-screen display and enjoy personal fusion with virtual water.

Collaborator: Programmer, Atsushi Morimoto

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ROY LaGRONE JR.

ORIENTATION MODULE #1
43 inches x 42 inches

Utilizing the techniques and concepts of sampling (collage) as a formal foundation, I explore themes of memory and improvisation to execute large-scale paintings, multimedia installations, and two-dimensional animated film shorts. Throughout both my traditional and digital works, I engage a visual dialogue while combining discarded disciplines and traditions with current-day innovation. My work includes references to design, ritual, and vernacular aesthetics.

"The art of Roy LaGrone sits at the crossroads of electric collage culture and resurrection aesthetics. His current visual production places him within a poly-visual continuum of past, present, and future imagicians of the true world order. As an initiate into the realm of cyber-shamanism and electric hermetics, LaGrone shows us through digital projection and artifactual reclamation the alchemical process of becoming through creation and reproductive re-creation. What results from this process are visual love songs for cyborgs searching for guidance through this Frankenstein aesthetic we now call global culture. Stay tuned."

-Kevin Sipp, Artist/Curator, Poet and Writer

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LISE-HÉLÈNE LARIN

PAINTING BY NUMBERS
30 inches x 35 inches

"Painting by Numbers" is a series of non-figurative 3D animations. I investigate the paint program included in Softimage by painting on my objects. I want to rearrange the elements of traditional languages of sculpture and painting while exploring uncharted visual realms in film. I model organic objects and map them with the same small, nondescript texture using different parameters to invent a landscape. I also want to create new emotional conditions in viewing 3D animated film: I show my digiscapes in installations using anamorphosis to further heighten the sense of loss and to stimulate the imagination.

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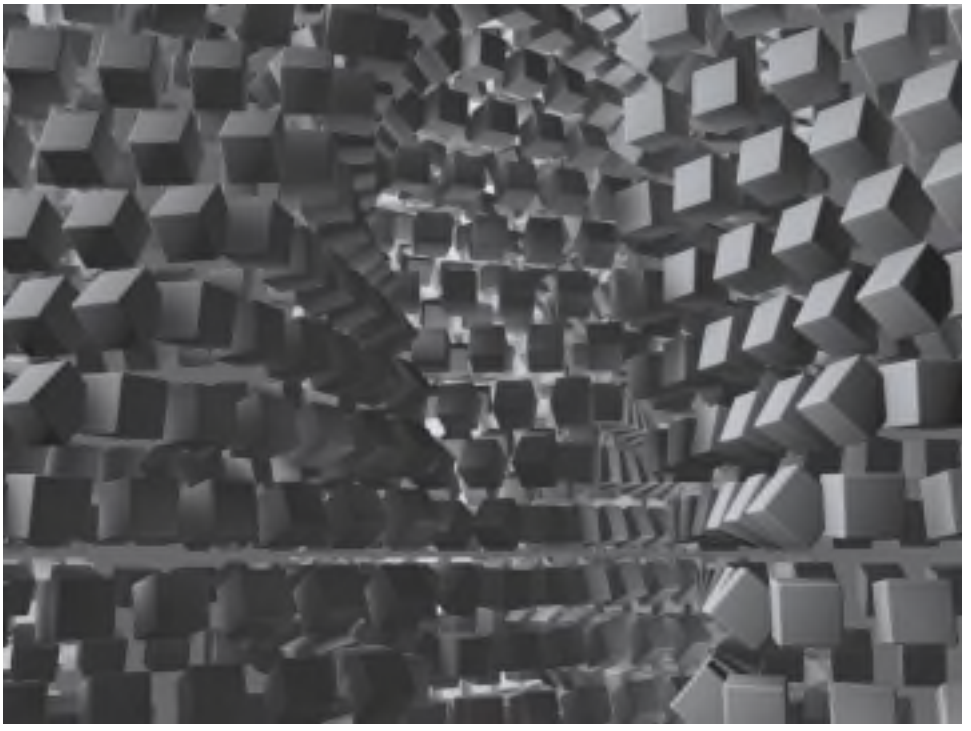
STEPHAN LARSON



DUALITY (BALANCE)

"Duality (balance)" takes an abstract journey from one extreme to another and somewhere in between reveals that the extremes are not so dissimilar. In this short animation, a cube serves as the root of a transformation between the organic (natural) and the geometric (synthetic). Sometimes subtle, sometimes obvious, the animation progresses from flowing patterns to concrete shapes. The opposing relationship of organic/geometric and natural/synthetic mirrors the objects, movements, and even cultural conditions of the world around us. There is balance between these extremes, and, in the end, balance becomes unity as the two extremes are revealed to be one and the same. Organic/geometric and natural/synthetic: one does not exist without the other.

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JOON Y. LEE

BUTTERFLY

A little girl is leaning against a wall. She looks depressed. Suddenly, a butterfly flies by. It lands on a wild flower. She is interested. The butterfly takes off and flies around the girl. She slowly raises her hand and extends a finger. The butterfly lands on her finger. She smiles. Then the butterfly flies away. She follows it. It lands on a wild flower. She slowly walks toward the flower. She is almost there. She takes a step forward. Click. She steps on a landmine.

Producer
Joon Y. Lee

Director
Joon Y. Lee

Contributors
Miya Han, Seong-Yeon Hong, Jeffrey Lerer, Kuan Lin Hung

All 3D works and compositing were done in Maya and AfterEffects.

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LIZ LEE

SCREW, NEEDLE, SCISSORS, AND PLUG
18 inches x 24 inches

The politics of representation and description of objects and images always exist within a cultural framework. The politics of representation presumes that relations of power are operative both in the act of representing and in the relations that govern the production and reception of cultural artifacts. This action precludes any notion of autonomous meaning and focuses attention on the generation of meaning as it operates to affirm, contest, or subvert dominant ideological formations. Images, therefore, even of ordinary objects, cannot be viewed only through appearance or use, but through cultural, historical, and political analysis.

"Abstract Paintings" addresses the use of identifying language and symbolic representation. The series of objects I chose to represent are common tools. In the series, I intend to question the relationship between the word and the thing, and our cultural interpretation of symbols and codes. I chose tools because of their significance in evolutionary science. Tools, for primitive man, according to Pete Hamill in his introductory essay to *Tools as Art: The Hechinger Collection*, were an extension of the hand and the mind. Tools take on even more significance when analyzed through the advancement of other technologies, as Hamill continues:

"Before designing his tools, Primitive Man must have imagined their use… Form, as usual, followed function… As Homo Erectus gave way to Homo Sapiens [and] language began to evolve into a more refined instrument of expression… while Primitive Man was inventing tools and language, he was also creating art… Prestige technology includes the most prestigious of all human activities: the making of art."

"Abstract Paintings" investigates ordinary codes of identification. The image of a tool represents its use, but the accompanying text subverts the objective and reveals the subjective. The use of the tool is transformed. The series becomes a comment on form, function, language, technology, and art.

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PETER LEIGHTON

ONE HAND CLAPPING
18 inches x 24 inches

HERMETICALLY SEALED
24 inches x 18 inches

In our haste to claim the future, we deny the present moment only to find its tattered remnants later emerging from the shadows in a series of endless loops of endings and beginnings scrawled onto the walls of primitive caves encoded into the structures of digital files' alphas and omegas and the artist within each of us locked in the eternal struggle to draw meaningful connections between ourselves and the Great Mystery beckoning to us just beyond the edges of the paint.

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BONNY LHOTKA

BABY DOLL
24 inches x 32 inches

BLIND FAITH
26 inches x 26 inches

Known as an experimental mixed-media artist, I combine digital tools with traditional media to create my art. Blending these tools has required innovation and creation of new processes. I use mirrors, sand, dirt, glass, Plexiglas, metal, paint, and digital imaging to add visual richness to my art.

I've used images of discarded objects to weave a fantasy, sometimes incorporating puppets, dolls, and mannequins, and other such treasures into a fertile garden where the complex assemblage of meaning is visible to the unconscious. I combine fragments of objects, dreams, and reality to illuminate the connection between life and death, technology, and the human spirit.

These images may trigger generational memories without conscious thought. The archeology of the mind displays moments frozen in universal time. Some images are animated through the use of lenticular imaging. They gain depth and power much as time itself may reach terrible or wondrous slowness for a moment before continuing its eternal march onward.

A unifier of these individual components, the lenticular lens enables the creation of this moment of timeless reality. It bars viewers from entering the artificial world, yet enables them to understand the dimensionality of the creative intent. The artistic vision, brought to order from chaos, unifies time and space in a visual dimension that is only possible with lenticular imaging.

"Baby Doll" is imaged on a surface like cracked ceramic. This custom surface is coated with inkAID-enabled imaging on a flat-bed printer. This image addresses the roles children are expected to adopt as they mature. At times ominous, it raises questions of lost innocence.

"Blind Faith" combines the image of the doll printed on both sides of Plexiglas with UV ink. A mirror is placed behind the image, which causes the viewer to become part of the composition and story. The visually rich metallic bronze and gold contradict the silenced soul. Two side curtains parting set the scene.

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PATRICK LICHTY

8 BITS OR LESS (SERIES)
18 inches x 44 inches

The "8 Bits or Less" series is an outgrowth of my ongoing work in low-res digital photography using wristwatch-based digital cameras, such as the Casio WristCam. The initial print run was a result of an installation created for the New Orleans Contemporary Art Center's "Digital Louisiana" exhibition. The installation consisted of a single-channel video installation flanked by four large-format composites of images from the video.

To give some background on the entire body of work that centers around "8 Bits or Less," I like to consider the paintings by Gerhard Richter that took video images and usually motion blurred them into unreadability.

Conversely, the use of a gray-scale camera with a resolution of 100 pixels^2 challenges the artist in terms of subject and readability. This imagery questions the ongoing conversation regarding verisimilitude in digital imagery and its transparence with reality and traditional art techniques. These wristcam images refuse high resolution, they refuse color, they refuse fluid motion, and the work presents, this using technologies that were created for the increased fidelity of digital-media representation (digital video and large-format printing).

PATRICK LICHTY




8 BITS OR LESS

The series explores nascent forms of digital video and the altered sense of perception that it creates. Each frame was shot individually and then hand composited in non-linear video editing software. In the video, the protagonist is someone who has become blind, but it is unclear whether this is a physical or ideological form of blindness. The "eyes on his watch/ears on his hip" have now become the focus of his perspective on the world, and that world becomes one of low-resolution digital mediation. What ensues is a journey into situationist theory, musings on the nature of perception, and alien abduction.

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TONY LONGSON

CHEETOS 2
48 inches x 48 inches x 6 inches

This work is 3D, geometric, and procedural. It explores the boundaries (where interesting things happen) of visual space (chaos and order, structure and deconstruction, spatial and flat).

Technology has been integral to the design and construction of my work since the early 1970s. A motive for making these constructions is that they are exciting to look at. They are not memorable in the sense that much of the iconic work of the 20th century is, nor can they be described in the way that conceptual art can be. They need to be experienced. They are visually stimulating in the way that optical devices such as telescopes or 3D glasses help us to see things differently, but in this case the art is both the device and the content. It has a strong spatial identity.

The organization of the elements in my work is procedural, though that may not be obvious. Symmetry and recursion provide visual clues to the genesis of the work for those who want to explore.

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DAN LU
WAYNE GUO

TRANSFORMATION

Nature has complicated and splendid patterns. Tremendous changes have been involved in the natural pattern transformations. The primary goal of "Transformation" is to affect this cognition through presentation of temporal patterns by rebuilding procedural logic and geometry. We are interested in exposing the skeleton of temporal phenomena, expressing a kind of intricate freedom, and generating a conveyance of infinity in the states of natural reactions (for example, order and disorder, the stable and the unstable) to interpret them in an artistic way.

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JESSICA MALONEY

UNCONSCIOUS DROWNING: TRAPPED IN A MOMENT
62.5 inches x 86.5 inches x 6 inches

This piece invites the viewer to slip into the unconscious world of the female figure represented in the image. As the viewer's eye slides back and forth across the panels, making their way down the piece, the image gets darker and goes out of focus. The figure is trapped within the frame, and the same motion is repeated again and again. The mood of the figure is somewhat serene, the closed eyes suggesting sleep. Yet the darkness closing in towards the bottom panels talks more about suffocation than peace. The female figure is trapped in a repetitive moment and is drowning without even being aware of the gravity of her situation.

HOLD ON
30 inches x 27 inches

"Hold On" is part of a series of work that addresses various cycles of struggle and acceptance that are repeated throughout lives. This is a broad topic but can become extremely specific when applied to our own personal problems or "repeat loops." We each have our own stories, and "Hold On" focuses on the point in the story when we are trying to hold it all together. The red scarf represents strength, passion, and energy. All of which are needed when we are trying to "Hold On."

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KENT MANSKE

ISMS, OTICS & OLOGIES
A portfolio of prints.
19.5 inches x 14 inches x 1.5 inches

Introspection drives my need to create. Processing thoughts, ideas, and observations is the nature of my studio activity. Through the creation of images and objects, I explore my being and belongingness. This investigation helps me access my own truths and facilitates my understanding of the world in a broader context.

I am an imagemaker who creates visual symbols as instruments to understand and communicate feelings and perceptions. The works function as conscious maps, providing visual routes for interpreting ideas and making meaning. Each mark metaphorically documents an experience, comments on a situation, or reveals a process of thinking.

Printmaking processes (traditional and digital) serve the conceptual development of my images and satisfy my passion for working with materials. Completed works are realized as fine art prints, artists' books, and objects. As form, the book provides order, structure, and sequence for communication and exchange. I use the efficiency of the codex for its fixed sequence and boundedness, and the boxed portfolio for its characteristics of containment and embodiment. Within these conceptual spaces, relationships emerge, narrative evolves, and meaning manifests.

"Isms, Otics & Ologies" is a boxed portfolio of 12 digital prints. Individual prints are signed and numbered in an edition of 28.

Media: Epson 2000P, Epson Archival Ink, Somerset Velvet 225 gsm.

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JULIET ANN MARTIN

FROM COMPUTER ART TO DIGITAL ART
18 inches x 18 inches

First of all, I need to make a distinction between computer art and art that is made by a computer. I'm going to call the latter digital art as opposed to the former, which I will call computer art. Computer art is focused on the digital process and the digital origins of the work. It separates body and soul by dissecting the process and the product. This is in contrast to the thoughts of multimedia and video artist Marina Abramovic. According to her, in art you must "keep body and soul together = remain alive." I am introducing more of the human hand, more body and soul, into my art pieces. This "post-human" combination joins the process with the product, quite literally, the body and the soul. This will allow the references to nature and the body to come together in a literal, yet subtle, manner. I am creating cybornetic art. Although it may have binary beginnings, it has multiplicitous ends. The scale of the print gives it a relationship to the human. These creations contain the metaphor of the cyborg on paper. My pieces are about combining a machine and a body. The actual images are executed in a fashion that will mirror the concept of the work. I do this quite literally by scanning parts of my body and combining them with examples from nature using digital means in the computer. By taking scans of my body and nature, I am converting them into digital data. The computer is not used as a cut-and-paste collage tool. Effects that could not be obtained through methods of collage or non-digital printing techniques are used. This is a digital image that takes advantage of its medium. Other physical items I scan include textures from nature, such as bark and leaves. This provides the images with a true organic quality that could not be obtained otherwise. I also scan watercolor washes for a more relatable quality to the images.

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BARBARA MARTINSON

ENDOGENOUS
11 inches x 14 inches

As a frequent traveler, I used to purchase small souvenirs as mementos. When the accumulation of stuff became overwhelming, I decided to stop buying things and capture an image that I would take home and use in digital image explorations. This has proven to be an interesting and fun exercise, and it extends the enjoyment of my travels. While manipulating a scan of an actual sea grape leaf from Miami, a landscape began to form and the notion of trees and leaves making up a landscape became a metaphor for the composition. The word endogenous means "developing inside the cell or body," and the composition suggests this organic process.

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MICHAEL MASUCCI

QUANTUM ENTANGLEMENT

This new work is an off-beat, sometimes surrealistic drama, combining psychological uncertainties, the paranormal, and their inexplicable interconnection with the bleeding-edge concepts in modern theoretical and quantum psychics. Unable to distinguish between reality and delusion, between sanity and insanity, the characters explore aspects of themselves as well as the collective unconsciousness.

The desktop video revolution is nothing new, and artists at EZTV have been creating original, no-budget projects (often feature length) since 1979. Utilizing off-the-shelf tools and combining elements of traditional storytelling with experimental cinema, these projects have often gone on to acclaim by leading film and art critics, and have been exhibited in major museums and on television internationally. EZTV's ongoing philosophy has always been that the contemporary artist must not just create work, but must also create the atmosphere by which new works are seen. As acknowledgement of this philosophy, EZTV has operated one of Los Angeles' oldest running micro-cinemas and digital art galleries, and strongly believes that curatorial exhibition of other artists' works makes a much better artist. An ensemble of actors, dancers, and other artists collaborate with EZTV's core group of video, music, digital, and motion-graphic artists, who write and produce their experimental projects as exercises in the continuing dialogue between art and technology.

"Quantum Entanglement" is a new EZTV digital-video work. Its first public showing is at SIGGRAPH 2003, at the request of the Art Gallery Chair. It stars Aimee Zannoni, Kate Johnson, Bart McLean, and Alex Keith. Story, music, and video by Michael Masucci. Produced by Michael Masucci and Kate Johnson.

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MONIKA MAY

CREEPING MAGNOLIA
28 inches x 40 inches

OUT MY WINDOW
28 inches x 40 inches

An omnivorous magnolia is captured by a xeno-biologist on a field study to Zantlis Prime. Created to be part of a colleague's masters thesis study on non-terrestrial virtual worlds for gaming environments.

In "Out My Window", a 3D forest induces the viewer to question its source. This work tests the fundamental perceptions of reality. Nature can be beautiful and enchanting. A challenge is to replicate this beauty in digital format and to capture the "soul" of nature electronically. The piece began as part of a masters thesis for a colleague. Originally named, "Forest on Sulear Prime," over time the piece evolved to be purely an artistic endeavor. It was built using models, procedural trees, and texture maps.

An interesting response to the piece is that some people assume it is a photograph. However, on an unconscious level they realize it cannot be a natural scene, as it has no depth of field. I feel this work does meet a basic condition of being hyper-real. As I continued working on "Forest on Sulear Prime," it was enlarged and output as a "photograph" for a client, who encouraged me to print it large. I continued to manipulate it and changed the name to "Out My Window." I still continue to change elements of the work and make new versions.

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JAIMY McCANN

DARKCITY
11 inches x 9 inches

My work is based on the potential that technology offers artists to express imagination and ideas. I am interested in how emotion, fantasy, realism, and detail can all be composited together with the use of 3D and 2D software tools to compose compelling works of art.

I derive my inspiration from environments (urban or natural). I feel observation of characteristics and details of environments reveal more about the inhabitants than the inhabitants themselves. There is a language of inanimate details available and translatable to the astute observer that conveys a most beguiling force of life and energy .

"Darkcity" is a member of a body of images formerly published in *Computer Arts Magazine*. It is a study of how 3D and 2D computer tools can represent the formal concerns of fine art such as color, perspective, depth, and detail to create an emotionally evocative atmosphere. This image was inspired by an affinity for, yet wariness of, certain large northern cities.

3D models built with Maya 4.0.

www.darkcityz.com

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RICHARD A. McCANN
JANET L. PARRISH-McCANN

BITS OF KNOWLEDGE
34.5 inches x 29 inches x 10 inches

The setting is a 1940s-type billboard. The two skeletons installing the image are symbols of the past erecting a scene that brings us to the present with hopes for a bright future. On the left, is a clock of time encircled by a snake leaning toward two figures enclosed in a gazebo cage. The snake appears to be reaching out to their outside world. They resemble nondescript manikin-like features that stir the artist within all of us.

Multimedia: Two cast dye-patinaed bronze skeletons, five fabricated spotlights mounted on wood billboard with external power supply, enamel paint on back surfaces, main image created with Illustrator 9, Photoshop 7, and Painter 7.

MOTHER SEES ALL
55 inches x 32 inches x 19 inches

This sculpture represents mother earth. The drawers represent the earth's crust, the womb for her population and the bottom her fiery bowels. The bronze woman on the galloping horse represents our fate, which is out of control. Yet she sees all and continues to protect all.

Multimedia: dye-patinaed bronze, marble, mosaic, glass beads, acrylic paint, oak wood, low-voltage lighting, plexiglass mirrors, plaster cast models, miniature models, digital prints on three drawer bottoms created with Photoshop 7 and Painter 7.

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NED MENESES

VISAGE
24 inches x 28 inches

On the surface, the nature of mind and consciousness eludes science and technology. Ideas have taken root about approaching a singularity. As such, it already has some life. Ideas give birth to thoughts and artworks. Ultimately, we may transcend those boundaries. In our efforts, we will find what is underneath only if we discover what is inside.

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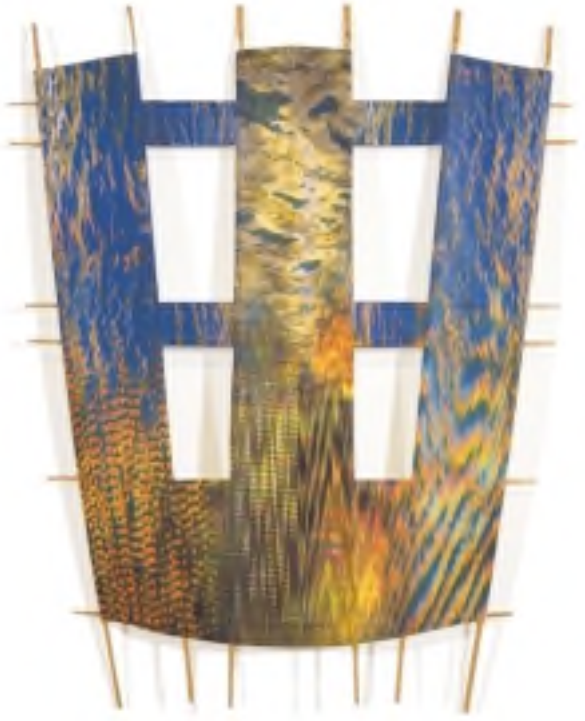
MARK MILLSTEIN



FREQUENCY KITES
18 inches x 23 inches each

Kite forms interest me because of the way that image and structure integrate to become objects loaded with many preconceptions. Kites are passive constructions interpreted as living, flying beings. The inherent animated life and idea of play implied by kites distinguishes them as a medium that is multi-dimensional and time-based.

I think of the surface design of these kite forms as reflections. In an imagined state of suspension, floating over the earth at different distances, the aerial view becomes the macro view. Facets of the kite surface reflect different magnifications and colors as they might appear when affected by the rush of wind and sun. These kites are collectors, and the images are grabbed in a rush across space, and into and out of the trees.

The interesting partnership of digital design with Japanese paper and the activity of folding and gluing, cutting, and bending manifest themselves as a strange but fulfilling technique. The contemplative quality of kite design and construction counters the multi-tasked fusion of editing and visual shrewdness with a finite lyrical resolve.

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MARJAN MOGHADDAM

ADORATION OF TELEPHONE: SPEAK TO ME
36 inches x 40 inches

"Adoration of Telephone: Speak To Me" is from the "Digital Entities" series, a collection of computer-generated print and time-based-media fine arts projects by New York City-based digital artist Marjan Moghaddam. The series explores visual forms for non-material and non-corporeal identities. In the "Adorations," computer-generated 3D females are reconfigured into the pictorial space of classical painting, seeking their origins as representational and Euclidean visual constructs.

The digital entities are paired with the technologies they originated out of as part of a constructed futurist mythology. As female parthenogenetic entities, or non-material maternal entities, they are modeled as basic and primitive humuncli with their own inherent fractal dermal pigmentation. They return our mesmerism of screen-based artificial realities with adorations of their own evolutionary origins in machines and technological cultural artifacts that defined our shift towards post humanism.

Process
The print-based images consist of computer-generated 3D virtual environments, with high-density geometry, that are rendered at high resolutions for output to archival digital C-prints. The series makes no use of scanned elements or visual components that originate outside of the computer as part of investigating the unique and "original" aesthetics of the computer.

As digital sculpture, the entities and their associative "space" are mapped with high-resolution fractals and procedural textures that define the self-similar patterns of their non-material informatics realm. The pixel-rich resolution and miniature aesthetic of the prints surpass that of film in further exploring the technological possibilities of resolution for "virtual photographs" of digital bodies in digital space.

"Adoration of Telephone: Speak to Me"

For much of the 20th century, the telephone came to extend the reach of the human voice and ear across great expanses. As an early post-humanist extension of the body, the telephone continues to present the "space" of remote conversation, an alternate space as valid and essential as physical space. Today this "space" extends to cover remote conversation with individuals and data as part of ubiquitous computing. Remarkably, the true test of AI sentience in our world also consists of a remote conversation in the Turing test. In the constructed mythology of this series, the digital entity invites us to a conversation.

Medium: Computer-generated 3D modeling, rendering, and fractals output to Archival Digital C-Print. Laser Matrix process.

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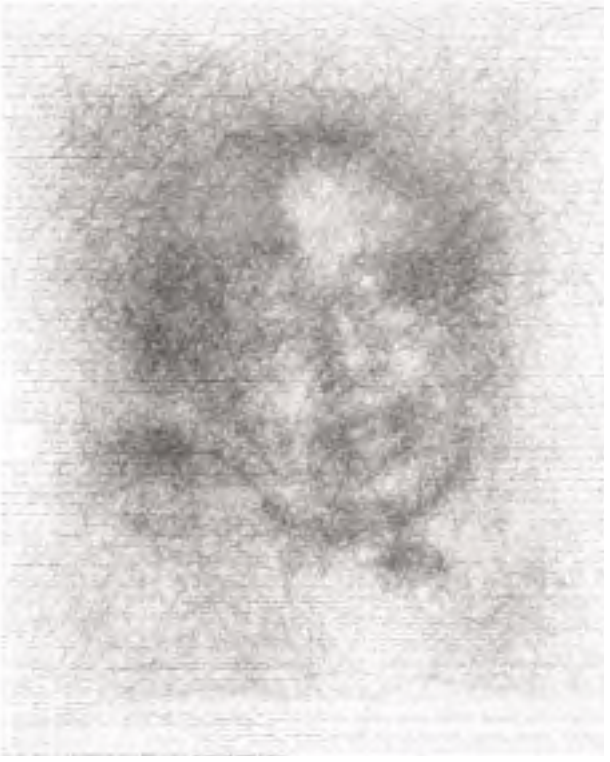
KAMRAN MOOJEDI



STEPHEN HAWKING PORTRAIT
41 inches x 52 inches

For the past two decades, I have been exploring and developing a drawing style that could not be executed without the assistance of a computer. The main body of my work consists of portrait drawings. Each portrait is in reality an extended series of over a hundred drawings that are immensely complex but held together by a unique line style that fits the subjects and their personalities. The lines form an image that expresses one's soul, the energy beyond the exterior mask, making the portraits both abstract and representational.

My work thrives on duality; it is both expressive and conceptual. It includes cross pollination of traditional art media with the computer. While containing classical and futuristic elements, it is neither about the past nor the future, but a bridge between the two. The portrait series depicts cultural icons who have struggled with their own duality, reflecting the realities of our time.

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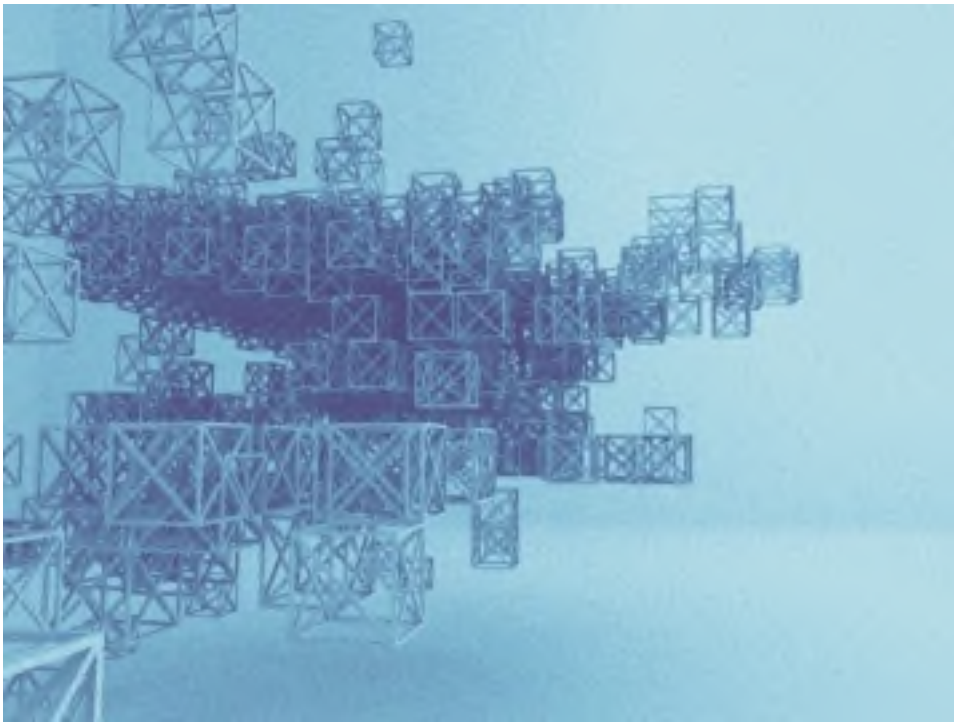

BUILD

Most of the built structures that populate our contemporary urban landscapes are concatenations of pre-fab parts and standardized dimensions. This film plays with different skeletal arrangements of those parts to create images reflective of contemporary building blocks.

Director
Kazuma Morino

Producer
Kazuma Morino

Music
Yoshiyuki Usui

Special thanks to
Chie Tanaka

Produced by
Stripe Factory

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PEDRO MURTEIRA

SEQUENCE #8
11 inches x 14 inches

I am a concept-comics artist who moved recently to the Bay Area. Presently, I have a series of images that incorporate both traditional methods and digital, based on poems by different authors. My work revolves around the relationships between human archetypes and their interaction with organic and onirical spaces, organized by numerical structures. I graduated from Central St. Martins College of Art & Design, London, UK with MA in scenography. My work has been represented in several international competitions and shows in Italy, the United States, Spain, and Portugal.

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STEFAN NADELMAN

TERMINAL BAR

"Terminal Bar" is a kinetic, photo-driven documentary of one of the toughest, grittiest bars in Times Square, Manhattan, as seen through the haunting black-and-white photographs taken by bartender Sheldon Nadelman from 1972 to 1982.

His son, Stefan, made the 22-minute documentary not only as a tribute to his late grandfather's bar, but of his father's 10-year dedication to taking over 2,500 photographs of the bar and its downtrodden clientele.

After receiving a bachelor's degree in fine arts from Iowa State University in 1994, Stefan Nadelman began working in New York City as a print graphic designer. Within four years, he transitioned to web design and began using Macromedia Flash not only for interactive design, but also for film. Since 1999, he has produced three films in his spare time while working full time as an art director.

The entire film is animated in Flash and composited in Final Cut.

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JOE NALVEN

THE ARCH
16 inches x 20 inches

Joe Nalven composites images that seek to draw out the extraordinary in form, color, theme, or composition. He traps and forms realities in a variety of styles: representational, conceptual, traditional, modern, surreal, abstract, impressionistic, or whatever category a viewer might imagine. He looks beyond ideologies that claim that one way of visualizing reality is better than any other way.

Ultimately, each image stands on its own. So, too, digital images stand alongside images derived with more traditional technologies. With both the older and newer technologies, the artist's image-making leaps forth. Did the artist succeed? Look at the image, experience the image. Ignore the artist's name, the medium, and whether the "original"is on a single piece of canvas or on a hard drive.

For Nalven, the dialogue should focus on the question: Does the image work? Then, if you are still interested, ask those other questions to get at the craft and the commercial value of the image. But recognize these as separate inquiries.

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MARILYN NELSON

U.S. NAVAL SIGNAL FLAG NARRATIVES - A, D, N, AND R
32 inches x 24 inches each

The series "U.S. Naval Signal Flag Narratives" consists of 26 editions of serigraphs. Imagery consists of photographs and handmade and computer-aided drawings and paintings, working with Photoshop, Illustrator, and FreeHand. The confluence of computer processes with serigraphy provides a contrast between digital and analog media. The use of digital technologies in my work allows manipulation of photographs and precise drawing of diagrams. It allows me to print color separations of photo-based work, which are then translated directly to the screen. The physical working process of screen printing, although difficult, is important to me. I hand pull all of my prints, one color at a time. My prints may have as few as eight colors, or as many as 17. My meticulous attention to craftsmanship at the computer and with my printmaking is an integral part of the content of each print.

Maritime flags are used to communicate while maintaining radio silence, transmitting messages by hoisting an alphabet flag on a halyard. When hoisted alone, each flag voices an individual message. Each print in this series contains the image of one flag and its written meaning. Included are my interpretations of the flag's message. My narrative intent is not to render concepts through realism, nor is it to literally illustrate each flag's definition. What's important to me are the patterns of effects that sustain a cohesive connection of my stories and create metaphoric associations with the viewer.

Memories seem to be more lyrical than literal. The process of revisiting one's history is natural and allows one to adapt to possibilities in the future. When I began this series, I thought the imagery to be only about family relationships and personal memories of growing up within the culture of the Navy. I soon realized that, in addition, my concepts represent experiences shared by thousands of service families. The military constitutes a separate and distinctly different subculture from civilian America. The government develops, maintains, and staffs its own resources to support the member families as they attempt to cope with the stresses and demands of the military lifestyle. These care-taking resources create a closely knit community that exercises a powerful shaping influence on the children. These prints examine a wide scope of influences and connect my memories to my present.

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MARTE NEWCOMBE
GREG SHIRAH

COVER

ENTRANCE

LAST FAREWELL

By working as collaborators, artists and scientists can make art that communicates our shared interests. Digital imaging provides the perfect vehicle for such collaborations, because of the speed that the medium allows. This collaboration entails using scientific data prepared by Greg Shirah and other NASA scientists and artwork done by both participants and using these sources as the basis for a visual dialogue between the artists. The work is passed on electronically as each person adds and subtracts from the ongoing work. The integrity of the original image is no longer of importance. The final objective is to create something original and challenging from data that are in themselves already original and in many cases of great beauty. The challenge as artists is not to make more pretty pictures but to attempt to communicate another way of seeing.

Greg and I are colleagues at NASA Goddard's Scientific Visualization Studio and have both been working with satellite data for a number of years. Two years ago, we decided to start using these satellite images with our own artwork and to collaborate in creating new pieces that included our own artwork along with the satellite images. My background is as a sculptor, printmaker, and digital artist, and Greg's is as an animator, computer scientist, and digital artist. The collaborations involved scanning a number of sculptures, in my case, and Greg created mathematically based objects. The mathematically based elements are curves based on parametric equations that have been rail-extruded and/or rendered using metaball techniques.

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WILSON NORTH

THE CHILDREN SHALL INHERIT THE EARTH
20 inches x 24 inches

I have always loved to hunt with a camera, using perception and intuition in an attempt to see beyond appearances into minute cracks in the hard concrete of reality that reveal little ironies, odd juxtapositions, and hidden truths. A favorite hunting ground is the fault zone along the nexus of culture and nature where balance is attained or sacrificed. Following intuition often leads to discoveries that further spark the imagination. Consequently, I've often found myself wanting to continue beyond the definitive moment of the single image to construct further comments, ferret out incongruities, and develop new histories. This desire to extend the captured moment led me to work with alternate darkroom techniques and slide sandwiching in the 1960s, multiple-enlarger printing and slide-duplication techniques in the early 1970s, and slide animation-stand imaging from the late 70s into the 80s. By the early 90s, the digital darkroom of the computer became a precise and powerful tool to enhance imagery and seamlessly edit composite parts into a whole. This allows me to work within the image to synthesize backgrounds and parts from a variety of sources.

The computer's electronic darkroom has made imagery paintable, distortable, and so precisely compositable that photographic reality will never be the same. I believe that this ability to continue to exercise the visual imagination, to expand the narration of the story, is the digital world's key gift to photography and creates a paradigm shift into a new modus operandi for photography. From 1/2000 of a second in a camera, an image can be given directional changes for years through the computer. Within the old paradigm, photographers are seeing and sensing the things they are after, but with the digital construction paradigm, they are imagining and orchestrating the scene they are after. Now a series of moments excised from the flow of time can be arranged for development of the artist's fiction. A narrative develops that arranges, connects, and comments on the moments utilizing changed or added objects as well as changed or added actions and reactions by the "cast."

My work bridges the perception of the hunt with the conception of construction. The production of this kind of imagery is run by internal timelines, guided by personal concerns, formed by the imagination, and it leads to creation of images not quite seen before.

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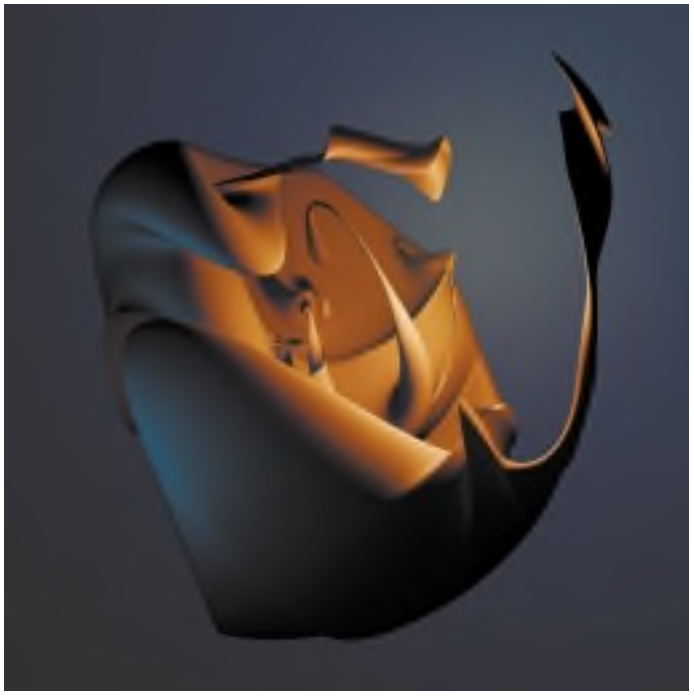

ERATO'S LYRE
26 inches x 27 inches

A curious shape awaits its muse. The shape was created using procedures on a rough polygonal model, then warping and using the resulting deformed mesh to define a subdivision surface.

Modeling and rendering: Maxon, Cinema 4D.
Compositing: Adobe Photoshop.

GOLGI CISTERNAE
26 inches x 27 inches

Impressions of activity in the cycle of a golgi complex. The form was modeled as a low-resolution metaball object. The resulting mesh was used as a cage for a subdivision surface. The subdivision surface was rotated through a deformation field, in a loop of 1,800 frames. The animation was then reviewed by overlapping different states of the model to try different composition options. Three separate state/frames of the deformation were chosen and rendered at high resolution to be used in compositing the final image.

Modeling and animation: Maxon, Cinema 4D.
Compositing: Adobe After Effects and Adobe Photoshop.

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MONICA ONG

SEEING
25 inches x 31 inches

GREAT GRANDMOTHER
23.5 inches x 29 inches

My body of work tells stories not simply about the people in my family, but more specifically about the dynamics that exist between us, and our relationship with the changing world. Within four generations, my family grew up in three different cultures (China, the Philippines, the United States), all the while sharing diverse views of the world, which color the relationships we share. Landscape and portrait images are collaged with textures and memories to portray the subtle complexities that are so common in the most basic of human bonds. With the use of digital art technology, these images seamlessly depict a unique co-existence of past and present, East and West, inexperience and maturity that has allowed each of us to discover our own identity as a human being who is an indispensable part of one global family.

MONICA ONG

MOTHER AS A BOY
28 inches x 22 inches

RED
21 inches x 29 inches

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MICHAEL O'ROURKE

AUGUST, 2002
32 inches x 132 inches

AUGUST, 2002
detail

"August, 2002" is a large-scale print produced by combining several photographs scanned at high resolution and manipulating them digitally to produce a panoramic view of dense vegetation. The size and format of the image invite the viewer to study the work both from afar and up close. As we move in closer and walk left and right, we become aware of a myriad of details that were not distinguishable when viewed from a distance. The more we look, the more we see. In one section of the image, high in a tree and camouflaged against background trees, a Great Blue Heron perches on a branch. Only if we take the time to look very carefully, do we see the bird. Only with repeated and concentrated viewing do we come to understand the landscape that is our world.

Slightly off center, an overgrown path leading into the underbrush is faintly visible.

The composition references the traditional horizontal scroll paintings of Chinese landscape art, as well as the "all-over" paintings of the Abstract Expressionists.

The print is produced as a mosaic of 8-inch-square tiles, each printed on a digital ink-jet printer, then sealed and protected by a plastic facing. The tiles are in turn mounted onto a rigid lightweight board.

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SUSAN PARKER

SUNSET3
24 inches x 36 inches

Sunrise and sunset, like breathing, are constant truths, necessary for survival and immensely uplifting to the soul. To combine these two events with the ocean has been my sanctuary. It is the universe's finest place of worship; everyone is welcome.

My images are visual representations of states of being I have experienced while in the presence of such beauty – joy, inspiration, serenity, bliss. Each image has embedded within a secret to unlock: How can I enhance what is already perfect? In the process, it is revealed.

To be able to take three dimensions and flatten them, merging all layers in an instant, is a humbling exercise. In a moment, all is one again. 2D is a reminder of my temporary stay in this 3D form.

To record and create is a gift. I am historian and artist. To share that, an even greater privilege.

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AUDRI PHILLIPS

NANOTUBE LEAF
26 inches x 26 inches

MEDIEVAL PEAR
25 inches x 18 inches

This image was started from a 75-pixel-by-75-pixel bmp image of some nanotubes my brother Jonathan created as a scientist working at the Los Alamos National Laboratory and the University of New Mexico. It is part of an ongoing collaboration between us that involves exploring the links between art and science.

There are so many possibilities in digital painting that sometimes it is fun to do something very simple. This is my offering to that end, a digital still life of a pear.

AUDRI PHILLIPS

FREEWAY WIND

This is a visual video poem touching upon the temporary nature of life. The sadness that is one and the same with the beauty all around us, from the blur of the freeway to the pear upon the plate. The smell of a certain type of air pollution still brings back poignant memories from childhood.

I have combined live-action imagery taken with a consumer-grade digital video camera (I enjoyed the low-tech look) with particle animation done in Maya, digtal paintings, scanned oil paintings, and 2D animations done in Macromedia Flash. This video is still in progress. I will continue to improve upon it.

Special thanks to John Adamczyk for the soundtrack.

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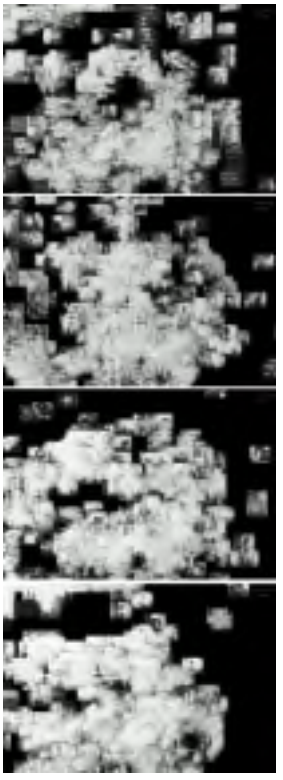
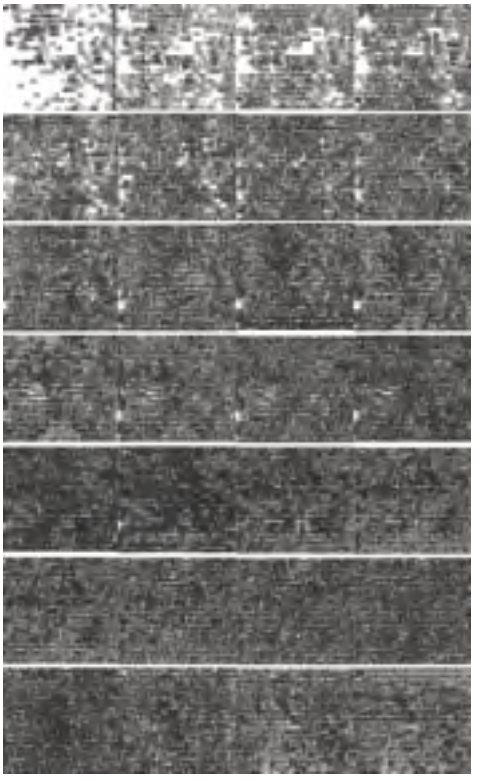
ANDREA POLLI





THE FLY'S EYE
Two works: 42 inches X 63 inches each

"The Fly's Eye" (2002) creates an animated document of both space and time, and draws inspiration from the structure, function, and significance of the eye of the fly and other processes of vision. The history of a film or a live video feed is built in layers of position and image.

TECHNICAL DESCRIPTION
"The Fly's Eye"consists of a computer system designed to perform real-time spatial analysis and deconstruction of a video using a custom-designed interface. Each frame is tracked and analyzed according to the location of light, color, or motion in the frame. A copy of each frame is placed in a grid according to the results of the analysis, and a live animation is created.

Digital prints created have included:

1. A lighting analysis of Fellini's "8 1/2" in which the print is divided into a grid of 28 squares, each documenting a 10-minute section of the film layered over the previous 10 minutes.

2. A lighting analysis of Bunuel's "Un Chien Andalou," in which the print is divided into three rectangles, each documenting a 5-10 minute section of the film.

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JEFF PRENTICE

FLORENCE
25 inches x 73 inches

SAN DIEGO
9.5 inches x 75 inches

Over the past several years, my work has spanned photography, video, installation, and new media. The creation process is a combination of practical steps, intuitive decisions, and experiments with technology, media, and platform. As a painter, I found the additive and subtractive process, the unintentional action, often resolved the image. Digital media lend themselves to this approach, through their malleability, modularity, variability, and automation. In digital media and installation, elements can be rearranged, stacked, erased, enlarged, suspended, and ordered. Invention, and an engagement in the rapidly changing dialogue between media and culture, are fundamental components of the work.

Recently I have been working on the "Habitat" and "Debris" series, which present a database of people, their codes of dress, gesture, and artifacts. Collecting the material for "Habitat" involves shooting over 200 digital photographs per day in specific locations, usually for several weeks. My presence on the boardwalk, on the street corner, in the crowds takes on elements of a performance as I attempt to blend in, become invisible. Some people are unaware of the camera, others notice but ignore it, and still others are disturbed or curious about my intent.

The work presents a large array in an ambiguous flatland that flows visually with a percussive rhythm, read like hieroglyphs or text. The digitized images are individually traced and cut out in Photoshop and composed into a site-specific digital collage, consisting of between 1,000 and 3,000 separate files. Working with such a huge database at times promotes a rough-edged, painterly aesthetic as editing speed increases. At other times, it slows down into a mechanical, painstakingly exact activity. The challenge is striking a balance between an efficient production strategy and formula, and a more exploratory process that allows for change and discovery.

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JOOHYUN PYUNE

HANGING MEMORY
160 inches x 89 inches x 60 inches

I create art as a way to contemplate life. Life contains love, separation, joy, sorrow, passion, and grief. My works embrace the human being's multiple layers of emotions. The works are elegies that I compose on fabric, where the qualities of flexibility and transparency are resonant with the sentiment.

Dye sublimation is a perfect solution to mirror complicated feelings on fabrics with multiple layers. Using digital technology is as natural as using conventional materials like paint or sketching ink for me.

When combining digital outcomes with natural media, I find a certain synergy of beauty. It is also similar to the fusing process between oriental and western culture. So, in some of my works, a piece of bamboo hangs in front of a human shadow, or a tree hangs surrounded by a tunnel of transparent fabric, or behind it. This tendency to employ the natural object, as well as accidental digital inaccuracy, is, to a degree, influenced by Taoism and nauturalism from my cultural background. My works are layers of emotions formed through digital transformation. I hope that viewers experience their own emotional layers among mine and their own to them.

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THEA RAPP

THE CRONE
20 inches x 35 inches

LA LUSSURIA
24 inches x 36 inches

"The Crone" is my tribute to the "Kitchen Witch." The symbol in the center is the talisman they use to invoke the power of the goat. It is commonly used in love or lust spells or to simply give them more power during invocation.

The Lust card from the tarot was the inspiration for "La Lussuria." It represents hidden intentions and secret knowledge, enticing you even though it is forbidden.

I communicate more effectively through imagery, and I value the response of the viewer because it helps me to gain a better understanding of my work.

All base images are my own original black-and-white, 35mm, medium-format, or large-format photographs. Final photographic fiber prints are then scanned and manipulated using Adobe Photoshop 7.0. They are then printed on a LightJet printer onto Kodak semi-matte paper.

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RESFEST

H5'S "REMIND ME"
(From the Best of RESFEST)

Today's cutting-edge filmmaking is all about creative collision and inspired convergence, as artists from wildly different backgrounds use computer-based tools to create exhilarating, hybrid projects that unite music, storytelling, video games, animation, music video, abstract art, and the lines, symbols, and logos from the world of graphic design. And this is the sort of work favored by RESFEST, an international, traveling festival of innovative shorts, music videos, design films, and features.

RESFEST, along with *RES Magazine,* was founded in 1997 as a showcase for work that employs digital technology (whether in the form of new DV cameras, desktop-editing systems, or animation applications) in innovative ways. Early on, the festival's goals were to meet with filmmaking communities across the world, sharing ideas and techniques, and to offer a venue for cutting-edge work not screened anywhere else. The festival has grown steadily over the last several years, and it now travels to 10 cities on six continents.

As digital tools have become ubiquitous in both the production and post-production spheres of filmmaking, the festival's digital emphasis has been replaced by the simple desire to showcase projects that push the boundaries of form and storytelling.

This Best of RESFEST screening presents a survey of projects from the 2002 festival: experimental documentaries, music videos, design films, animations, and live action/animation hybrids. In each project, filmmakers leave behind musty notions of realism in favor of creatively exploring the collision of the real and the fabricated in a series of kinetic, often music-based projects that delve into peculiar corners of history, offer the perfect depiction of a data-obsessed culture, or portray the delicate ripples of love and loss. In each project in the show, viewers will find some thrilling twist when the depiction of reality gets tweaked!

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CYNTHIA BETH RUBIN

SIBERIAN SUMMER TALES
26 inches x 36 inches

Memory and spirituality flow around and through one another. We step outside of our own daily worries and sink into the pool of humanity that is greater than our individual selves. In this moment, there is no history: we merge with the past, with our traditions, with other traditions, and ultimately with the worries and the daily lives of others.

The imagery of my work is based on memory and imagined connections with the lives of others. I am naturally drawn to spiritual places, to locations that carry history, or were constructed to confirm collective memories. But any place that speaks of history, of past lives and nearly forgotten moments, can become the subject of my explorations.

Digital imagery is particularly well suited to constructing visual tales of imagined memory. We layer our associations and our recollections, pulling out important details and simply holding onto others as background thoughts. The imagery that I develop within the computer is similarly layered. Representations weave in and out of each other, mixing with the colors and textures that give meaning to those fragments of the past that I am able to pull into the present.

The source photographs for the images are my own, shot during walks through places filled with echoing memories. On the day that I arrived in Russia, I flew across the mountains and plains into the Siberian sunrise. Looking for a connection, I spent the first early morning in Novosibirsk walking among the high-rise Soviet-era apartments, and discovered a few remaining wooden houses, nearly forsaken vestiges of the past.

In "Siberian Summer Tales," the goal was to recreate the feeling of the homes of the people who resisted moving to Soviet-era housing, who occupy a hidden enclave of traditional Russia on the edge of Novosibirsk. Too shy to shoot pictures of these houses, I worked from a composite of other Siberian photographs, melding vegetation and houses as they are melded in this community.

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MICHELE RUND

REMEMBERING 3AM
Approximately 13 inches x 19 inches

SYZYGY
Approximately 13 inches x 19 inches

As a traditional artist, my primary focus has been on portraiture. When I discovered the drawing tablet, I shifted this focus over to my digital artwork. Although the work has remained thematically similar, working within the digital realm has brought new dimensions to these drawings. Many stages of each drawing can be preserved and saved. As a result, the process is no longer lost when the drawing is finished. In some cases, the early stages of the works are ultimately presented as the "finished"pieces. In addition, details of each drawing can even stand as pieces of their own. Within this particular series, each piece has a detail that is paired with the original to become a diptych of sorts. The included details have been intentionally manipulated to exaggerate the "digital artifacts" within. I feel this process brings an element to the work that is exclusive to digital creation.

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RAYMOND ST. ARNAUD

THE CHAIR OF FINAL REMORSE
28 inches x 21 inches

Raymond St. Arnaud's first means of artistic expression was photography, and photography continues to be the basis for all his work. For his personal visual statements, he has used photographic images to produce photographs, paintings, drawings, and prints. Currently, he is using his photographs as a source for computer-manipulated/altered images and prints. He outputs his images with an Epson 3000 printer using a Lyson archival dye set on archival art paper.

The basis of his personal imagery can be described as photographing a found object or a found incident. One of the methods he uses to change images may be thought of as recursive or self-referential. The image is altered by using information from the image, not only as the source for the image, but also as the modifying parameter. Other modifications include: altered color and tone values, and enhancement or suppression of detail.

These images are from a new series called "As Seen On TV," in which the photographic images are modified to resemble a symbolic TV screen.

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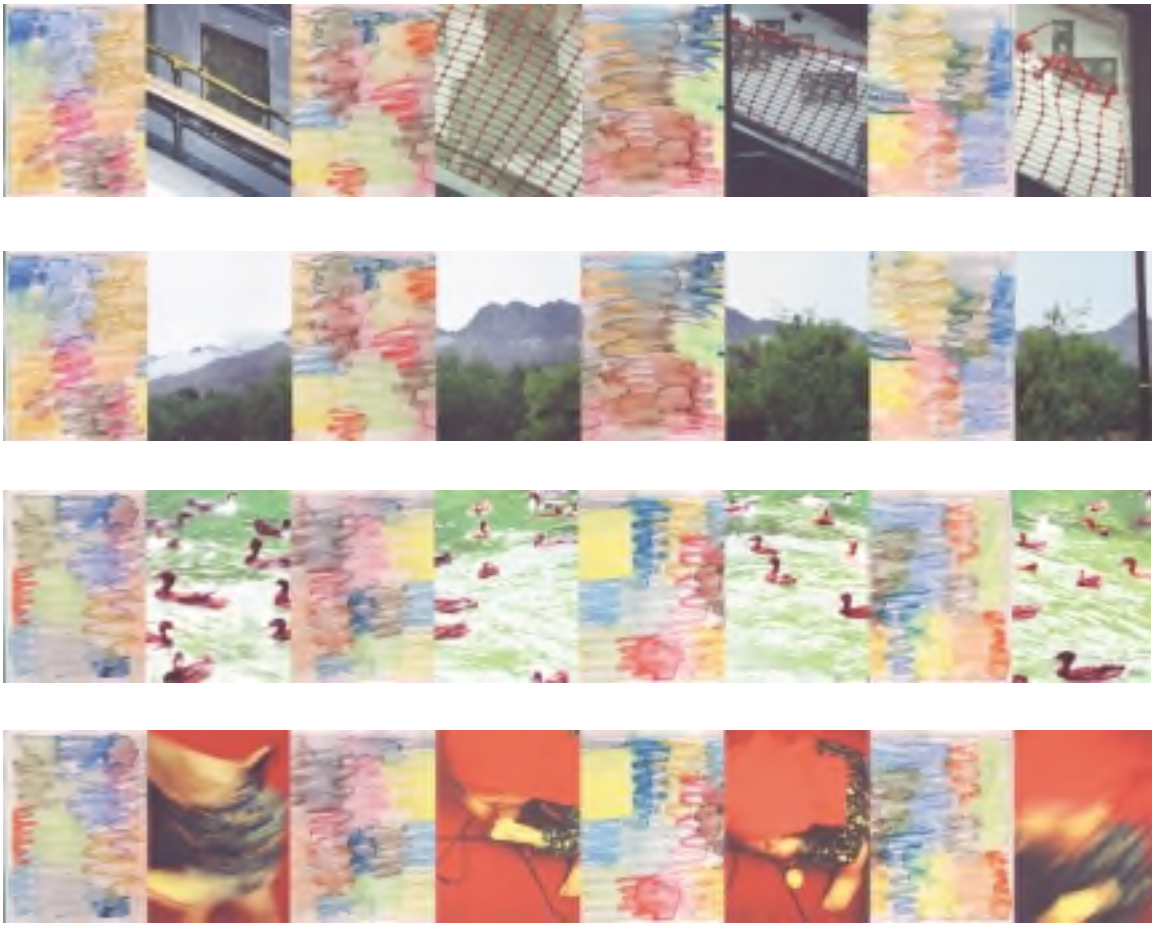

ASCENSER
8 inches x 28 inches each

This panorama series explores culture and consciousness, especially the relationship between preconception, perception, and meaning. These are photographic/painted constructions composed of interrelated images, an extension of painting into four dimensions. They present a dialogue between an individual viewer and external realities, juxtaposing actual-seeming places and things with conceptual, archaeological, and painterly images. Although some parts of the panoramas seem to present a photographic realism, everything has been constructed or revised digitally, with the revisionary process an explicit aspect of the overall process. Meanings are developed in conjunction with viewers' expectations and responses, creating a resonant framework in which the artist mediates between the external world and the artwork, and the artwork mediates between the artist and the viewer.

Traditionally, paintings are built up layer by layer, each successive layer superseding and covering what came before. There is a regret for what is lost, an interest in the dynamic permutations of the process, the archaeology of a painting. New technologies enable work that utilizes collage, montage, and vision in motion. With digital image creation, an artist can save multiple stages of the work and composite them together. Extending this temporal process along a spatial axis gives a viewer the ability to explore and recreate this process of creation via a temporal/spatial record of the work.

2 D

ELLEN SANDOR
KARL WIRSUM
(art)^{n}

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EGGDROP
40 inches x 30 inches PHSCologram
Karl Wirsum, Ellen Sandor, Pete Latrofa, Keith Miller, Janine Fron, and Jack Ludden, (art)^{n}
Courtesy of Jean Albano Gallery, Chicago

(art)^{n}: Virtual Visions
In the 21st century, artists are using everything from natural materials to electronic media to make art, revealing new metaphors in the meaning of the work and the process by which it was created. In the past 100 years alone, artists have explored humanity through the different kinds of materials they have used to make art. And within every new material lies the critical quest to invent new techniques, new forms, new approaches, new meanings, new theories, and continued dialogues with art history.

After more than four decades since the first works of digital art were created, one of the most intriguing directions has been the reinvention of collaboration as an artistic process. Throughout history, collaboration has existed by necessity to facilitate the massive scale of a project or the technological challenges of working in a new medium. Artists today are increasingly working in groups to respond to a variety of options that are available to them, revealing provocative changes in the behind-the-scenes look at how art is being made.

(art)^{n}'s approach to making art in the 21st century includes a broad spectrum of disciplines and views that have inspired new concepts of what art is, what it can be, and how it can be made. These developments have emerged from working in collaboration with peers from other disciplines, combined with the invention of the group's unique digital-imaging processes. Over the past three decades, (art)^{n} has witnessed the transformation from the physical to the virtual, producing a compelling body of work that reveals an elegant portrait of the digital landscape.

The art of our times exists as singular objects authored by singular artists, and it is evolving as a rich collection of ideas produced with multiple media by multiple authors in multiple locations at different moments in time. The greatest reward in producing art under these conditions is creating a shared language for embedding meaning into the unknown outcome of each experimentation.

(art)^{n}'s collaborations address subjects that place the most current issues of art, science, and technology into the public arena. (art)^{n} continues to manifest its concern with social issues such as disease, warfare, urban poverty, and remembrance. It is the group's mission to continue to create works that will influence, inspire, and preserve a cultural heritage that combines the old and the new for all generations.

"Eggdrop" is (art)^{n}'s third collaboration with Chicago imagist painter, Karl Wirsum. The piece features a whimsical virtual portrait of Karl's fantasy characters performing in cyberspace. (art)^{n} has also worked with Ed Paschke, Mr. Imagination, and the Roger Brown Study Center at the School of the Art Institute of Chicago. These special works have been shown in galleries and museums worldwide, and have introduced Chicago imagists to future generations of artists.

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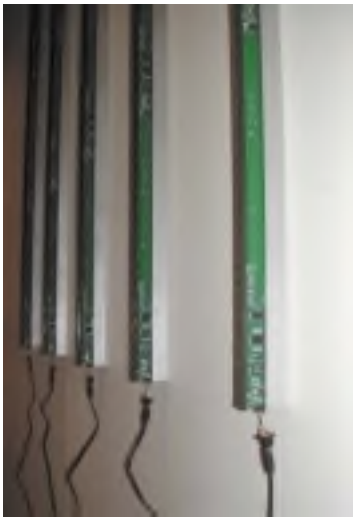

GRAVITY
4 feet x 4 feet
Digital electronics, light-emitting diodes, software, aluminum

Patterns and rhythms of gravity are explored by extending the intuitive quality of gravity into a digital realization. Five display columns independently show a gravity simulation with varying flow of acceleration, deceleration, and bounce efficiency, yielding complex and meditative patterns. Each column consists of three networked microprocessors driving 192 light-emitting diodes.

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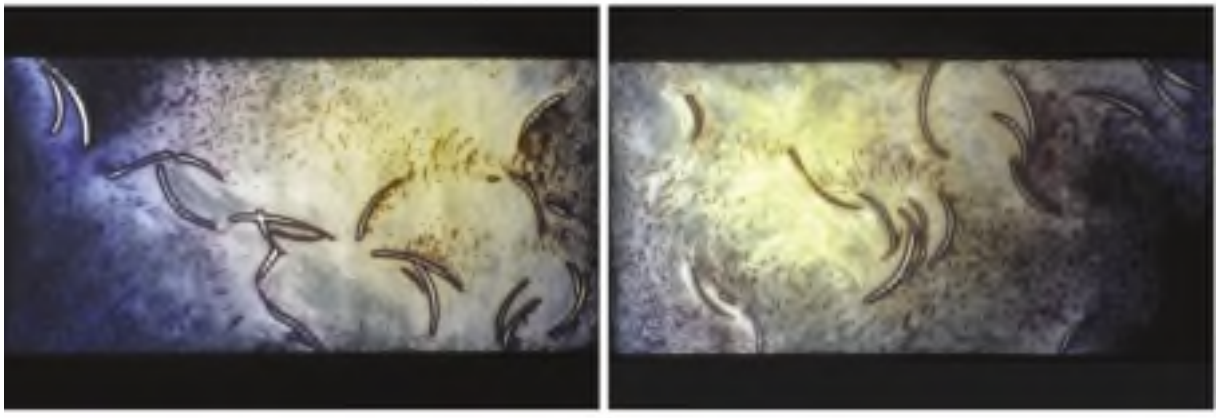
SOUND WAVES
Five 17.5 inches x 17.5 inches parts



INFLUENCE (DIPTYCH)
37 inches x 29 inches each

The multiplicity of views inherent in the five-panel presentation of "Sound Waves" simultaneously draws parallels and contrasts. The rhythms and movements are a constant, while relationships and forms differ. The delicate and subtle variations resonate in discrete patterns to create five individual worlds. Yet the synergy of form and movement of the five views combined suggest a larger splendor and draw the viewer more forcefully into their grasp.

The diptych "Influence" is based upon drawings inspired by seeing bullwhip-shaped kelp affect strong tidal currents at Deception Pass near Seattle. This diptych attempts to present a reflection of the human experience of nature while capturing the fleeting essence of the interaction between natural forces.

Water holds a special attraction. Who can resist spending time at a shoreline with light reflecting off the surface, form in a continual state of flux, and rhythms that lull. The hypnotizing movement of light on water and the shifting relationships of waves are the inspirations for "Sound Waves." The five square panels in the piece utilize lenticular technology to capture movement, transformation, and depth.

Viewing this work is like watching waves roll onto the beach: mesmerizing, relaxing, captivating. The shapes used are primarily abstract. It is their placement within the three-dimensional space of the lenticular print, and their relationship to other forms there, that suggest context and meaning. Bright reflections of light appear momentarily as the viewer passes by, just as wave movements create hypnotizing flashes of sunlit sparkles at the beach.

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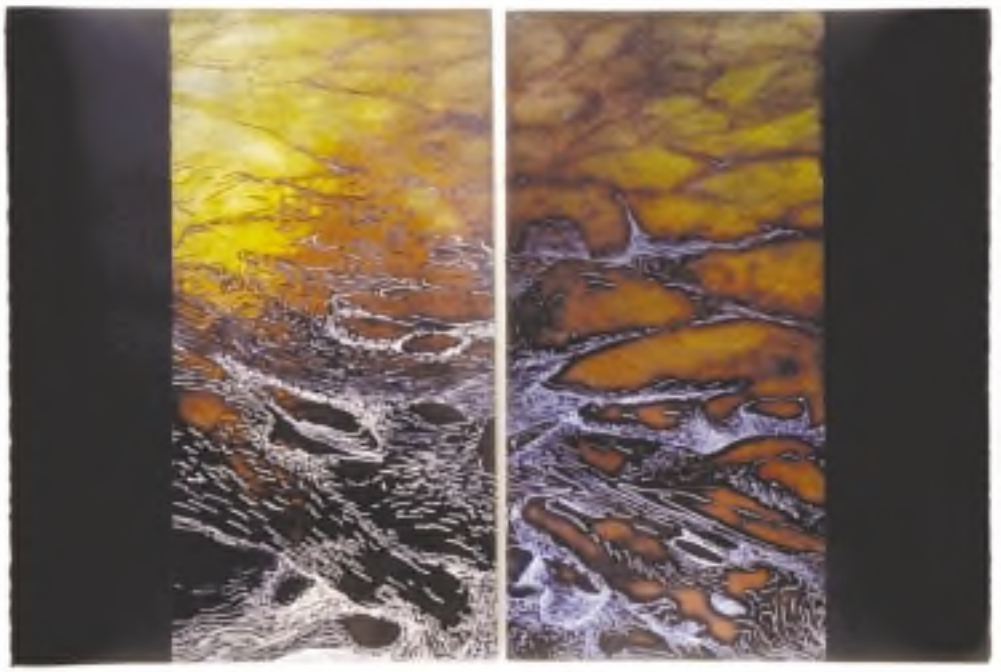

MAYNE (DIPTYCH)
29 inches x 37 inches each

The act of creating a simple line drawing, pencil on paper, is still the most satisfying experience to me. Working digitally, I am able to enhance drawings to create a greater sense of drama. Adding form, colors, and textures opens a wide expressive vocabulary. In "Mayne," simply rendered natural forms are further abstracted through the addition of color. The use of the somber golds and browns give this diptych its iconic feel. It is meant to raise the ordinary, everyday forms into a focus for contemplation and meditation.

Experiencing nature provides a visual meditation on pattern and form that nourishes the mind and body. It provides the opportunity for contemplation of a vast array of intricate forms and an even wider assortment of complex visual relationships.

Creating a microcosm of those forms and relationships is central to much of my art. The focus of the work is the grandeur in the small, the extraordinary in the common. It delves into relationships of form and pattern rather than realism. This expressive approach to the subject matter creates art that serves as a focal point for reflection. Like nature, the work invites contemplation as viewers overlay their own experiences in the interpretation of forms that border on the abstract.

I begin with photographs and drawings of patterns and forms made on frequent hikes, road trips, and other travel. These source images focus on pattern and form rather than vista. This work is from a series, "Reflections of Flow," which was initiated by an observation of the way in which the interaction between global, universal forces and local forms create intricate and beautiful patterns.

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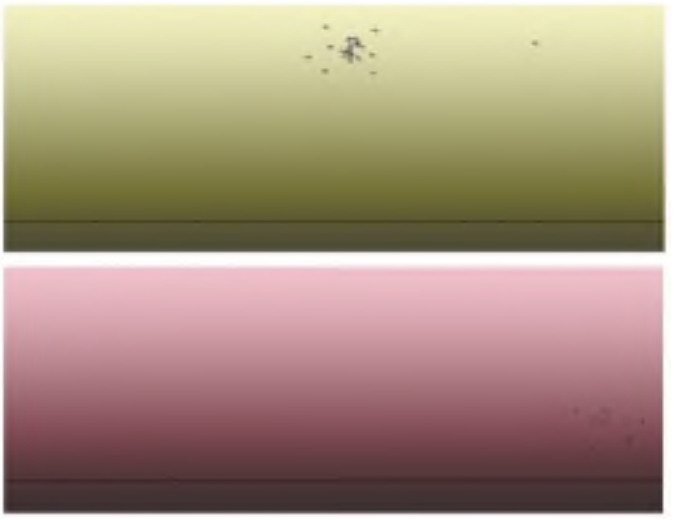

HARMONIC
40 inches x 6 inches (horizontal) or 12 inches x 20 inches (vertical)
Mixed media, series of three

These mixed-media prints are derived from an interactive animation titled "Harmonic." Conceptually, the project is an expression of harmony among humans, nature, and technology, and an argument for the power of computer-based art to engage and inspire through its behavioral life in addition to its audiovisual aesthetic.

The prints represent a merging of the digital and physical worlds in a process that integrates the computer as both tool and collaborator. Birds are drawn by hand, then digitally scanned and programmed to come alive with flocking behaviors based on Craig Reynolds' Boids. As users interact with "Harmonic," they make music and guide the flocks through space; background color changes with each touch.

Each image is derived from a flock in motion – a truly unique moment in time. Screenshots of the interactive animation in progress are captured digitally, printed on transparent film, mounted on plexiglas, and finished by hand. While the creative process starts (drawing birds) and ends (sanding surfaces) directly with the hand, it comes alive in the computer.

Aesthetic imagery is designed for simplicity, with an eye toward integrating the respective strengths of digital and physical media. These prints intentionally avoid the distraction of hyper-reality by offering a simple, semi-abstract, organic look and feel.

Finally, these prints directly address the question of the original in digital art. Is the original the idea? Is it the code? Is it the hand-drawn bird or the finished mixed-media piece? Each print is a single moment in interactive experience in progress. Randomness implicit in the behavioral code combined with variances in human behavior dictate that each screenshot is, essentially, unique. Finally, variations in the hand-finishing process yield a different piece each time.

The computer has much to offer art, beyond the realignment of existing material. At the core of this potential is an exploration of the fundamental forms and patterns replicated across organic entities of all kinds. Furthermore, these representations are most powerful when they move beyond the screen with a sense of space, dimension, and physicality.

The elusive horizon between the physical universe and the digital universe promises something sublime, whether you call it art, science, or entertainment. "Harmonic" is a simple gesture toward that promise.

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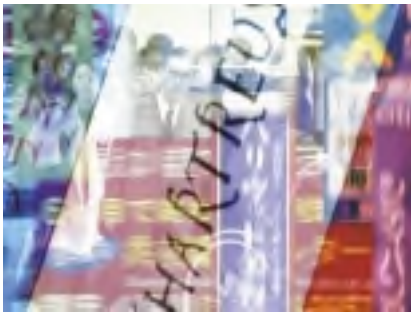
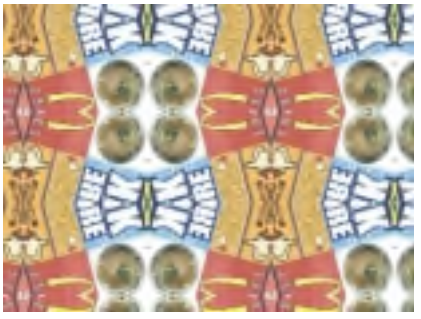
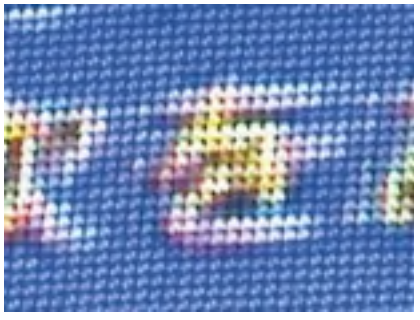
JUNKO HOSHIZAWA SEDLAK







TOKYO SIGN WAR

Junko Hoshizawa Sedlak is an art director, illustrator, multimedia creator, and video artist. She was born in Japan, but in the 1990s, she lived in the USA, London, Ho Chi Minh City, and Singapore. In 1990, Marvel Comics published six books of her graphic poem "Street Poet Ray." More recently, she has worked as a senior art director at an international ad agency. She has had solo and group shows in many cities, and she has published numerous articles and books on design. In 1998, she received an award from the Japanese Ministry of Culture.

In this two-minute motion-graphic video, signs are floating over Tokyo. They are yelling at each other silently and entering your brain unconsciously. The ending asks: "How much truth have you found?" Because signs often lie.

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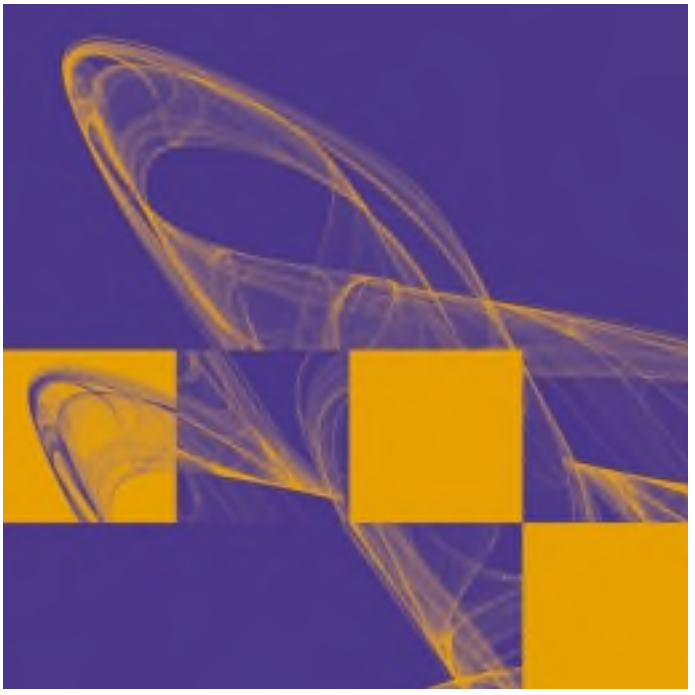
NATHAN SELIKOFF

ICE
20 inches x 20 inches



REACH
10 inches x 10 inches

Originally inspired and encouraged by Clifford A. Pickover's *Chaos in Wonderland: Visual Adventures in a Fractal World*, I developed custom software to explore mathematical phenomena known as "strange attractors." To me, these images, which are merely visualizations (approximations, nonetheless) of dynamical systems, betray a beauty not separate from, but inherent in, science and mathematics. My whole intellect is engaged by these images: as a technician, solving problems and analyzing, and as an artist, creating, selecting, and designing.

Custom software was created with Microsoft Visual C++, OpenGL, GLUT, GLUI, and DevIL (known as OpenIL when I used it). The original algorithm was presented in *Chaos in Wonderland*. Two separate programs were created: one to "look for" aesthetically pleasing attractors, the other to render them.

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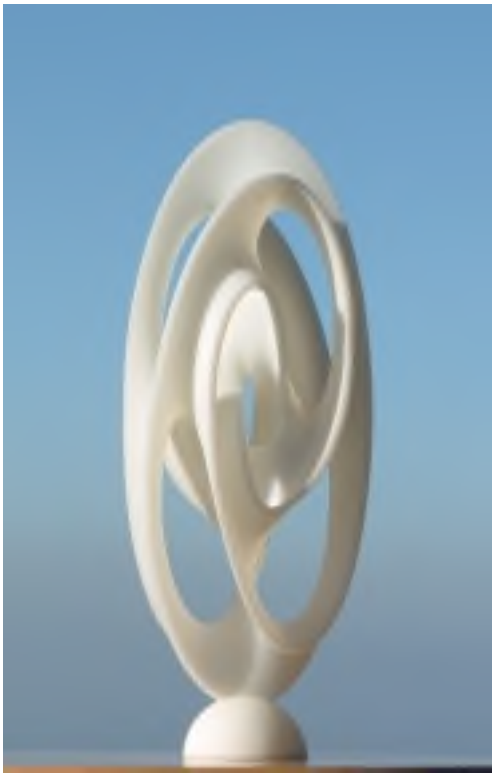

TOTEM_2
3 inches x 4 inches x10 inches

COHESION
9 inches x 4 inches x 11 inches

Since high school, I have been fascinated by geometry. I enjoyed constructing the more complicated Platonic solids with ruler and compasses, as well as reading about the fourth dimension. I went on to study physics at the University of Basel, and in 1970 started working at Bell Telephone Laboratories on the design of charge-coupled imaging devices. There, I was introduced to the field of computer graphics in courses given by Ken Knowlton and Lilian Schwartz.

In 1977, I joined the faculty of the computer science division at the University of California, Berkeley. Inspired by a talk by artist Frank Smullin, I started to develop the Berkeley UniGrafix rendering system, so that I could depict objects such as the "Skeleton of a Klein Bottle" or the "Granny-Knot Lattice." Since then, the focus of my work has been on computer-aided design. First, I developed programs to support circuit designers, later architects and mechanical engineers, and recently even artists.

In 1995, I started a close collaboration with Brent Collins, who had been sculpting abstract geometric art for two decades. With my students, I developed a procedural "sculpture generator" program, to help Collins prototype potential future work in virtual form. Later programs generalized the original concepts and eventually expanded the design space through new paradigms. In this work, I see myself as a composer in the realm of pure geometry. "Totem_2" is the latest creation from a recent modification of the "Sculpture Generator I," which allows me to create these elongated forms. It was created on a Fused Deposition Modeling machine.

The design of the geometry of "Cohesion" dates back about three years, but was only cast in bronze in 2002 by Steve Reinmuth.

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GREG SHIRAH

CORNUCOPIA
21 inches x 20 inches

I am inspired by the beauty in mathematics and science. I'm particularly interested in relationships between natural phenomena and algorithms, and how algorithms can be used to create naturalistic artwork. I'm also interested in how scientific data such as satellite imagery can be used in producing artwork.

I favor detailed organic and natural structures that are created procedurally (for example, using parametric-equation series to define gross form and fractal-based algorithms to define detail and texture).

The proceduralism in Maya and RenderMan is well suited for the types of artwork that I create. Other software packages that I use include Photoshop, Lightwave, and IDL.

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SUSAN SLOAN

THREE WAY CONVERSATION

The primary content of "Three Way Conversation" consists of a discussion among three individuals. The fractured conversation was constructed from separate monologues serving to link the portraits, whilst at the same time isolating them in their own space. The work questions the structures of perception, the intrinsic elements in the construction of representation. The aim is to present multiple views simultaneously: a "conventional" one where events unfold linearly, and a "sculptural" one, of the apparatus as a whole, in which each image undergoes structural manipulation. The conventional and the sculptural co-exist within the same screen space. This manipulation or editing has taken place in a three-dimensional virtual space, creating discontinuities, shifts in relationships, and a perplexity about what is being perceived. The perpetual variation in viewpoints introduces a plurality of actions into the work and at the same time unifies them as a sculptural whole. Sharp, exact images are lost and found again like an endless stream of remembering and forgetting.

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ANNE MORGAN SPALTER

CRUISE SHIP DIVER
28 inches x 22 inches

SMALL FACTORY/OCEAN VIEW
22 inches x 28 inches

Technology has changed the profile of the modern landscape, from multi-lane highways to smokestack triplets to the hard geometry of cruise ships on the ocean. The computer, a factor in many such changes, is an ideal tool for meditating on the resulting new visual patterns. With a digital camera in hand, I record aspects of the modern landscape that intrigue me. Using a range of 2D and 3D software, I then create images that combine the visual language of photography with the interactive compositional strategies of painting. I hand render the final images using traditional oil-painting techniques.

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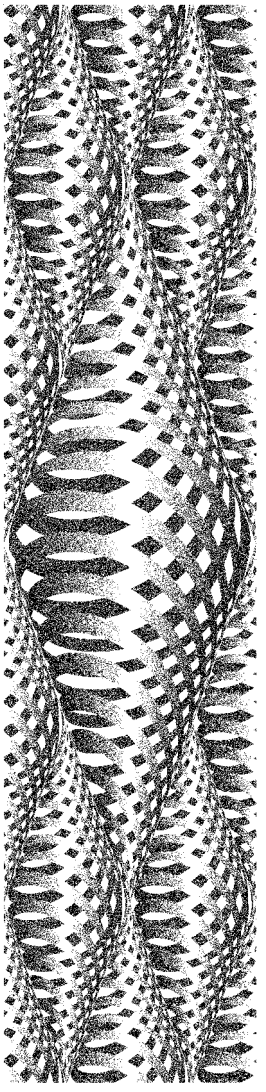
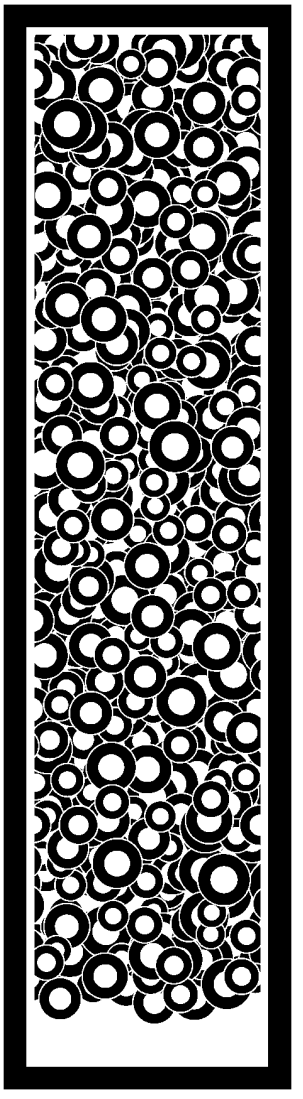
DAVID SPOHN



KITE
7 inches x 25 inches



BLOOPBLOOP
7 inches x 25 inches

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ARIE STAVCHANSKY

INTERSECTION

"Intersection" represents the choices we make in life and who we choose to make them with. Looking through a window on a rainy day, we see a constant flow of cars choosing to go in different directions at an intersection while raindrops tell a similar but hopeful story. "Intersection" is about the cyclical nature of how man and woman unite then separate.

This piece also demonstrates a novel technique for animating computer-generated raindrops on any smooth surface. To develop "Intersection," a unique formulation for creating several layers of organic masks was researched, developed, and applied. Adobe After Effects was used for all compositing, and Adobe Premiere was used for editing footage in the background.

Arie Stavchansky has a background in film production, animation, and interaction design. His primary research focuses on the discovery of new techniques for special effects and motion graphics. Designing interfaces for computational tools that help artists, designers, and filmmakers crystallize their visions is at the forefront of his research at The University of Texas at Austin. Artificially recreating natural phenomena in visual media is one of his interests, and he considers it to be one of the greatest challenges known to visual artists.

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MARK STOCK

TURBULENCE_INFINITE_P21C
48 inches x 24 inches

I enjoy using computer simulations of natural and artificial phenomena to visualize patterns created from either the isolation of a particular dominant force or the interplay between co-dominant forces. An advantage of working with computer models for these physical systems is the availability of data for any component of the system: effectors or inerts can be made visible, temporal; spatial dimensions can be swapped; and non-physical projections of data can be created. New patterns can be explored by nearly any combination of forces or projections. The aim of my work is the creative exploration of this space.

In these pieces, I attempt to illustrate the unseen depth and complexity of fluid turbulence and the difficulty in recreating its effects on a computer. Though it is an essential physical phenomenon, humans are surprisingly ill-equipped to visualize the structure or grasp the sheer ubiquity of turbulence. My choice to instantiate the transient vortex cores as solid cylinders is an attempt to understand their structure as well as to conceptualize their depth. Creating a feeling of depth and realism requires not only a computationally intensive inter-reflection calculation, but also extreme detail, using not textures, but real geometry.

In these simulations, turbulence is represented by segments of a long line, each segment representing the mathematical "vortex core" of a local packet of fluid. In this way, a turbulent flow can be represented more compactly by its vorticity, and not its velocity. The motions that evolve these vortex lines are a product of computer simulations of vorticity dynamics. In vorticity dynamics, each segment of each vortex line induces motion in every other segment in the simulation. The schemes designed to make this sort of calculation computationally tractable are called vortex methods.

Ultimately, each image is a photometrically accurate computer rendering of a tangle of these vortex lines. Special oversampling and filtering operations are performed in order to create the most detailed image possible. This image is then output to a Lightjet digital printer, which exposes photographic paper with a laser after internally upsampling the image to 4,000 dpi.

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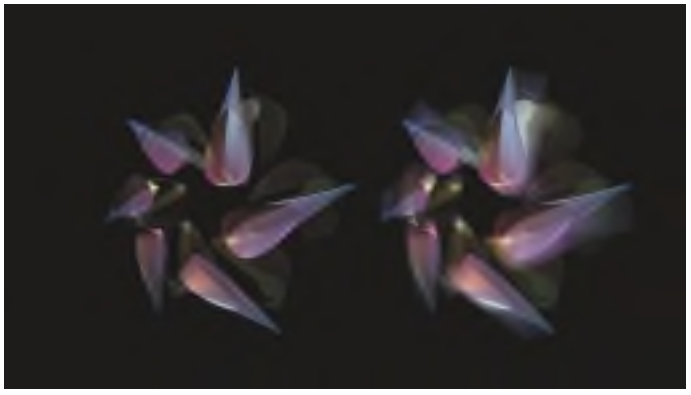
MARK STORY

THE RINGS SERIES - SPACE RINGS
46 inches x 12 inches



RIBBONS I AND II
26 inches x 14 inches

"The Ring Series: Inter-Dimensional Interference Patterns"

"Space Rings"– electromagnetic/gravitational context:
Fractional Brownian motion and turbulence functions, procedural shaders for reactions in electromagnetic and gravity well context, "magnetic flux." Profile curve extruded into rings, copied, scaled, rotated, and animated.

Applications: Houdini, RenderMan, Blue Moon Rendering Tools

Platform: SGI

"Ribbons I and II"

Translucent ribbons of color in spiraling motion forming into a nautilus of concentrated energy.

A simple NURBs curve, twisted onto itself to form an enclosed space, copied, rotated, translated, and animated to form a spiraling nautilus.

Applications: Houdini, Mantra, RenderMan

Platform: SGI

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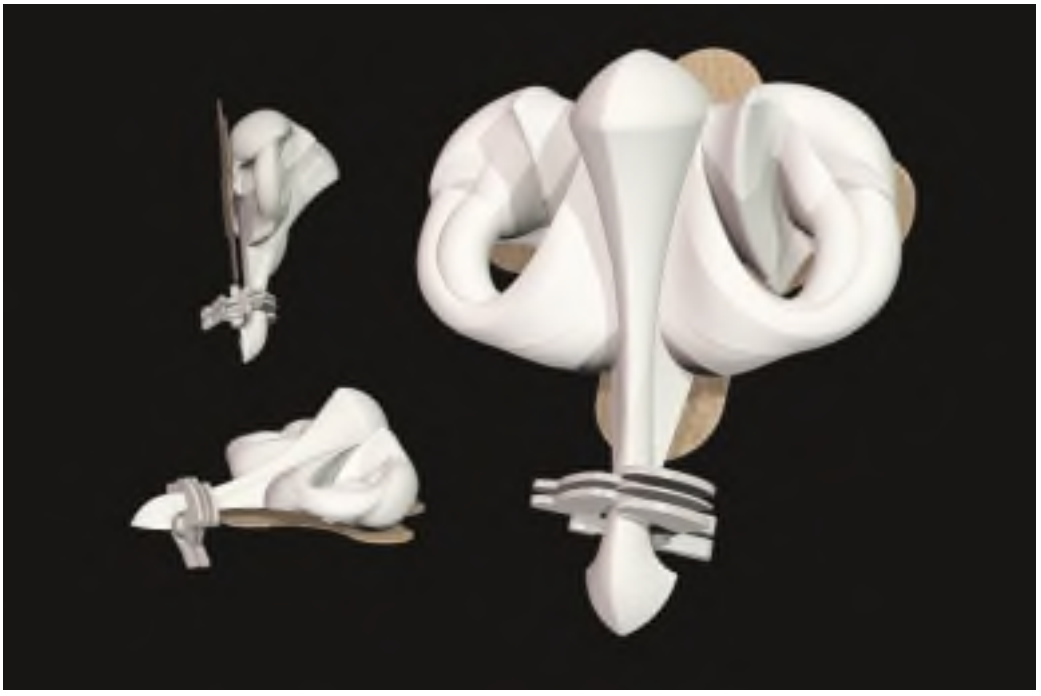
REBECCA STRZELEC



BOTH ARMS BROOCH
2.5 inches x 3 inches x 1.5 inches
Fused Deposition Modeled ABS Plastic and Medical Adhesive

My recent work is a continuing investigation of the ways in which wearable objects interact with the surface of the body. It consists of a series of brooches, pieces of jewelry that are worn on or around the chest. Using a variety of medical adhesives and wound-treatment devices, I create brooches that adhere directly to the skin. The adhesives provide an armature that accepts and supports the objects I create via CAD and rapid prototyping. My involvement with the computer as a medium has allowed me the freedom to design objects that I could not create by traditional means. Every aspect of each piece is created and conceptualized within the virtual building environment of a CAD application. I also re-create the medical devices, to scale, within this environment so I can build directly onto them. This virtual "fit test" allows me to create unique, fluid transitions from the adhesive to the brooch. When the brooch has been completed within the CAD application, it is realized tangibly through the use of rapid-prototyping technologies. My recent self-adhering brooch series is built using fused-deposition modeling, an additive process that builds ABS plastic layer by layer.

The relationship between my brooches and the body is one of an echo. Through form-language and material choice, I reiterate the shape and surface of bone, muscle, and ligament. I wish to communicate a growth or appendage that has developed from beneath the skin. While drawing inspiration from the female body, it is my intention to create hybrid organic forms that resist direct identification. Eliminating the traditional need of clothing as the attaching surface, I ask the viewer/wearer to see the brooch in the context of the naked female form. When worn, a dramatic tension is created as brooches are placed intimately on the skin, adhering and adapting to the surfaces of the body.

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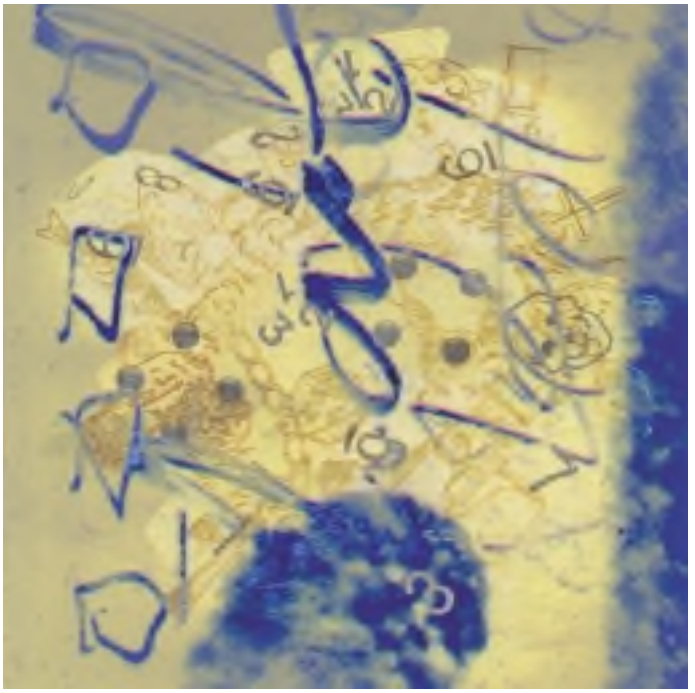
ELEANOR GATES STUART

AND
1,200 millimeters x 1,200 millimeters



DICE GOLD
1,200 millimeters x 1,200 millimeters

"And" is drawn from a series of large-scale digital images by gatescherrywolmark that construct a series of intersections between disparate practices, technology, and subjectivity, word and image. Intersections are transitional points at which the familiar becomes defamiliarised, unsafe, and capable of creative reinterpretation. Their existence at the site of such intersections enables the images to disrupt the dualisms on which traditional categories of both artmaking and art criticism are based. Thus, categories such as original and copy, artist and technician are at issue, as is the whole notion of authenticity. As the boundaries between practices and processes begin to break down, the work increasingly finds itself in an unfamiliar "elsewhere," a "placeless place" that is appropriately hybrid, plural, and impure. This "placeless place" might be thought of as a paraspace (a space that has a symbiotic, non-hierarchical, and ultimately subversive relation to ordinary space). As such, it is a transgressive place, a place of power and excess in which space, place, and identity become fluid.

"And" is located within such a paraspace, or placeless place. The work explores the dynamic interplay between time and memory, presence and absence, being and becoming, and it contains meanings that are incomplete and partial. The contours of this placeless place are mapped through metaphors of the ordinary and the everyday, generating intimate and feminised spaces within which new narratives of the self can be constructed. The work can be seen as part of an ongoing gatescherrywolmark project to create improvisational and open-ended work in which control over meaning becomes a negotiated process between makers and viewers.

The members of gatescherrywolmark are Eleanor Gates-Stuart, Jean Cherry,and Jenny Wolmark.

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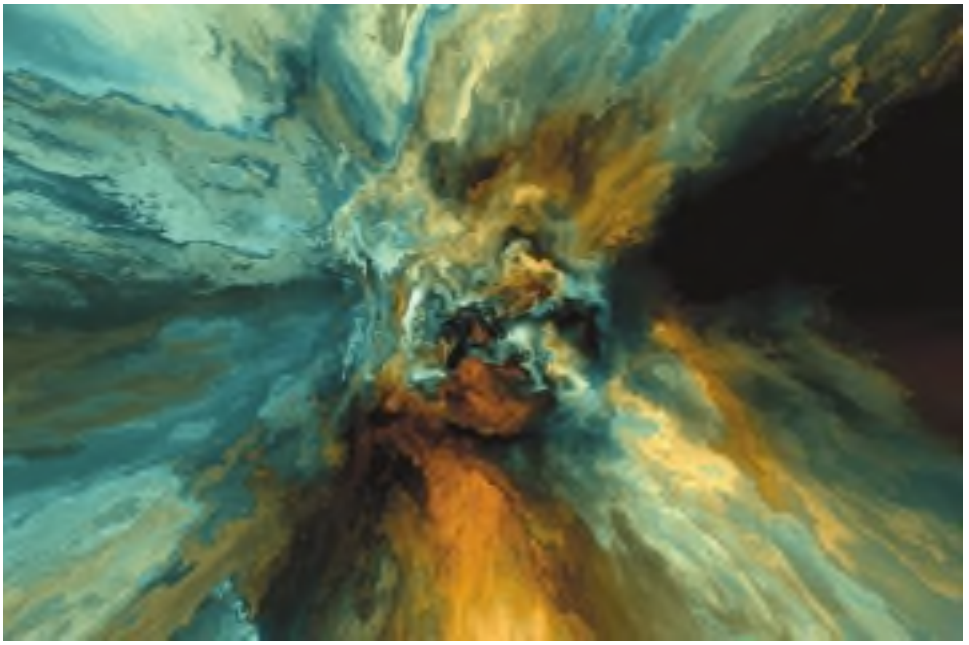

NEBULA
95 centimeters x 65 centimeters

I have been writing ray tracers for 10 years for use in teaching, research, and computer art. In my artwork, I try to create images of great fractal complexity from the simplest possible scenes. "Nebula" was created by ray tracing a single hollow black sphere with a mirror on its inner surface, and with the normals altered by a random bump map.

I placed the camera and a number of coloured lights inside the sphere and ray traced their reflections by allowing the rays to bounce 8-10 times off the inner surface. The bump map caused the rays to be reflected in random directions at each bounce, creating a chaotic system of light rays within the sphere. The images consist of the specular highlights of the lights, and their reflections, on the inner surface of the sphere. Because order often arises out of chaos, the resulting images are not completely random, but instead have a structure to them. "Nebula" reminds me of the wispy and filamentary structure of planetary or interstellar nebulae. Other images I have done this way remind me of clouds and a comet's impact.

"Nebula" was not planned in the sense that I had any vision of what it would look like. I usually have no idea what the images will look like before they are ray traced. I do, however, know when an image looks interesting or promising, and I then refine it by adjusting any of the approximately 80 parameters that define the scene. On average, an image will take about two weeks of experimenting before I am happy with it.

My images are printed with a LightJet printer on archival photographic paper.

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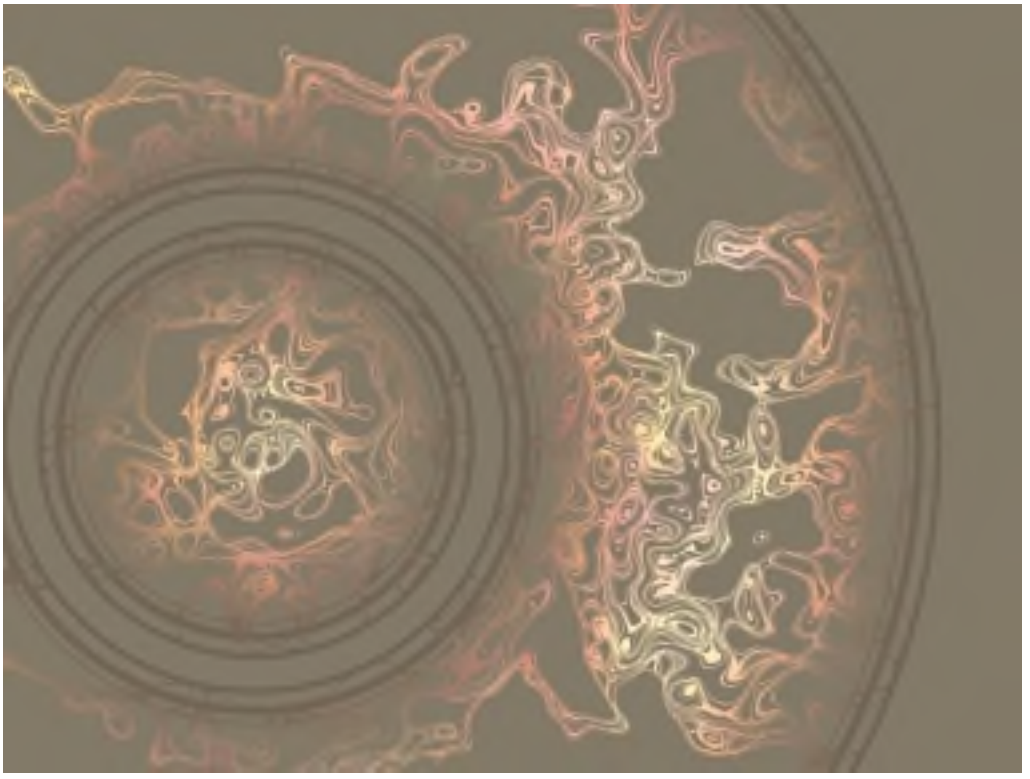
JOE TAKAYAMA



SOLAR WIND

A collection of sequences created using probability theory and two-dimensional metaballs. For the purpose of controlling the elements (motions, colors, sizes, and speeds) behavior patterns were defined using Markov chain, and random numbers were applied to thousands of individual metaballs.

Producer
Joe Takayama

Director
Joe Takayama

Faculty Advisors
Etsuo Genda, Tomohiro Ohira

Special Thanks
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KEIJO TAPANAINEN

BOLERO

TRICKSTER

Small, subtle differences modify interpretation. These works are an intuitive attempt to capture the graceful gestures of body language. Refining and reducing the primary elements of form communicates the complexity of body language with elegant simplicity. Beginning with original sketches, I explore the interplay of carbon-paper drawings with found images and textures. This creates a synthesis of disparate elements in unique collages that, in the process of evolution, marry the virtual and the real worlds. Their final forms comprise a series of giclée prints, using archival inks and museum-quality paper.

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PHILLIP TIMPER

THE ROYAL DEZZER
18 inches x 24 inches
A cruel tyrant's demented delusion.

DR. WOODSMITH'S LAMENT OF SHIDUCIOUS ODD
18 inches x 24 inches
The artist's regret of his youthful folly.

I work to bring dreams to life.

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TIMOTHY TOMPKINS

CASSANDRA
36 inches x 65 inches
enamel on aluminum
2002

My paintings reflect a combination of ideas: the materiality of paint and how the viewer perceives the surface, the history of painting as a medium, abstraction, representation, memory, technology, and optimism.

The work is executed on aluminum panels using high-gloss commercial enamels that enhance the liquid qualities of the paint. The liquid state of paint is more evident with enamel paint because when it's dry, the traced contours of the image I am painting remain. This quality gives a transitory effect to the piece, as if the image is still forming. In addition, I reduce the image to its basic seven or eight colors in an effort to abstract it further. This shift in presentation that occurs between what the actual found image was and what it becomes painted mirrors the way in which our memory recalls personal experiences. I then build up paint onto a stripped-down form so that the painting vacillates between the vagueness of the original image and the specificity caused by the physicality of the paint itself. The gloss enamel is not only a signifier for the material nature of the paint, it is also the vehicle in which the form is represented.

Subject matter for my paintings is taken from the media, found family photographs, or my own set-up photographs. These photographs are then reinterpreted through the computer. By using the photograph as a referent, I am challenging its autonomy. All of my paintings reflect color choices that are made through the computer. This not only affords me the flexibility of an immediate response to what I am seeing, it also leads to the possibility of unlimited color combinations through the computer color chart. The reliability of the computer in calculating colors is central to the production of the work. Theoretically, the specificity of color that is calculated by the computer is a stand-in for a human observation of how color reacts with form. Digitized color is essentially the "pure" color of an image as interpreted by the computer. I feel that colors filtered through this process somehow relate more closely to the concept or reality of technology infused with contemporary society. It is this reflection of a techno-society that is expressed both metaphorically in the reflection off the enamel surface and in the pureness of color that is filtered through the process of the digital.

The combination of processes in my practice is designed ultimately to feed and create visual pleasure. My own pleasure in creating paintings is manifested in the visual cues of the materials and content of each work. The directness of the experience that one feels in front of a painting, from its object quality to its materials and aesthetic, is unique to the medium. As a form of expression, I find the process of painting challenging in regard to its theoretical considerations. Why paint images from the media, memories, or photographs? It is the challenge of balancing the medium and its history with technology that I find rewarding.

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MARK TRIBE

STARRYNIGHT
20 inches x 24 inches

This is a digital C-print from "StarryNight" (rhizome.org/starrynight), a net art project that serves as an interface to the text archive on the Rhizome.org web site. Rhizome.org is an online platform for the global new-media art community. It has thousands of members in dozens of countries. The Rhizome text archive contains over 2,000 articles written by hundreds of Rhizome members since 1996.

Each of the stars on "StarryNight" corresponds to one of the texts in the archive. The brightness of each star is determined by the number of times the corresponding text has been read. Each time someone reads a text, the corresponding star gets a bit brighter. So the brightest stars represent the most popular texts.

Clicking on a star triggers a special pop-up menu. You can either click "read message," which causes the corresponding text to pop up on screen, or select a keyword associated with that text, which draws a map linking together all of the stars sharing that keyword into a constellation.

You can use these constellations to find other related texts, and in doing so, follow your interests through the vast array of ideas and information in the archive.

Anyone can create a star by signing up as a Rhizome.org member and contributing an announcement, comment, review, interview, or other text to the archive. And by using "StarryNight," you increase the brightness of the stars corresponding to the texts you read, leaving a visible trace of your activity (intensities are updated daily, so results are not immediate).

"StarryNight" depends on two pieces of original software: a set of Perl scripts that sort texts by keyword and record their individual hits and a Java applet that filters this information to draw stars and constellations. To access "StarryNight," you need Internet Explorer 4.x or higher on Windows or Navigator 4.5 or higher on Macintosh.

"StarryNight" is both a mirror and a map. On the one hand, it offers a reflection of the Rhizome.org community's reading habits. It is up to you to decide whether to click on a bright, popular star, or a dim one that represents a text that fewer people have read. On the other hand, it acts as a navigational interface by connecting similar stars/texts into constellations regardless of their brightness.

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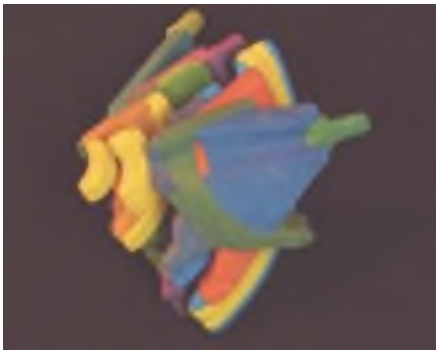

ENGINEERING SWEPT VOLUMES
6 inches x 6 inches x 20 inches

Swept-volume solids are 3D models that represent the space objects occupy or sweep out while moving. We've been working with complex swept volumes at Boeing for several years and often produce models with visually interesting shapes. This display is a collection of some of those models.

The purpose of this display is to show engineering-related swept volumes created by three different types of applications. The geometry for each model was generated by the voxel-based software we developed for use in design analysis, which is based on the methods discussed in the haptics interaction paper we presented at SIGGRAPH 99. The physical 3D models were printed on a Z Corp model 406 color 3D printer.

The first model is a representation of human-figure reach analysis motion for a new aircraft seating design project. The motion was created by keyframing positions of a human model performing several tasks, including reaching under the seat. The tessellated model was generated by the swept-volume module of the Voxmap PointShell (VPS) software toolkit.

The second model is of the extend/retract motion of the main landing gear of a large commercial aircraft. It is shown here without wheels for better visibility of internal linkages. The motion was created in CATIA and exported to our FlyThru visualization software for swept-volume model creation using VPS.

The motion paths for the third model were created by manipulating objects in a physically based virtual environment using a haptics force-feedback device. The collection of swept volumes shows the extraction paths of hydraulic system components through an access port. Like the other two models, the tessellated solids were created by the swept-volume generation functions of the VPS toolkit.

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NANCY TURNER-SMITH

THE CHILL OF A THOUSAND PEARLY HUES
17 inches x 22 inches

After working many years as a painter, I began working with the computer to create a new layer to my work. It was a natural step, a way to further understand nature and the world around us. As we all know, the very essence of nature is changing as more and more technology is introduced. Using the computer allows me to experience that change by accelerating the creative process. This acceleration allows for more types of work to be produced and permits more experimentation. It also allows me to pursue my vision and goals in art, which are to honor nature through this technological process and to express my interest in the natural cycle of life.

I believe that the experience and skill of drawing and other traditional methods are still essential for the creation of art. Because of that, I am developing a collection of my own drawings done in the field and from specimens from the Los Angeles Natural History Museum. I have drawn upon past work to create new compositions and created a series of images relating to the starkness and beauty of winter at Crater Lake National Park, Oregon.

It has been my intention to put the hand of the artist into the computer. I wish to address our place in this new technology in a poetic and human way, and to explore the possibilities that the computer presents in the printmaking process. My current work is based on original drawings that are scanned into the computer and manipulated with Adobe Photoshop to create new images and compositions. They are original, signed, limited-edition prints.

"The Chill of a Thousand Pearly Hues" is from a series of work created during an artist's residency at Crater Lake National Park. It celebrates the centennial of the park and the past, present, and future of nature.

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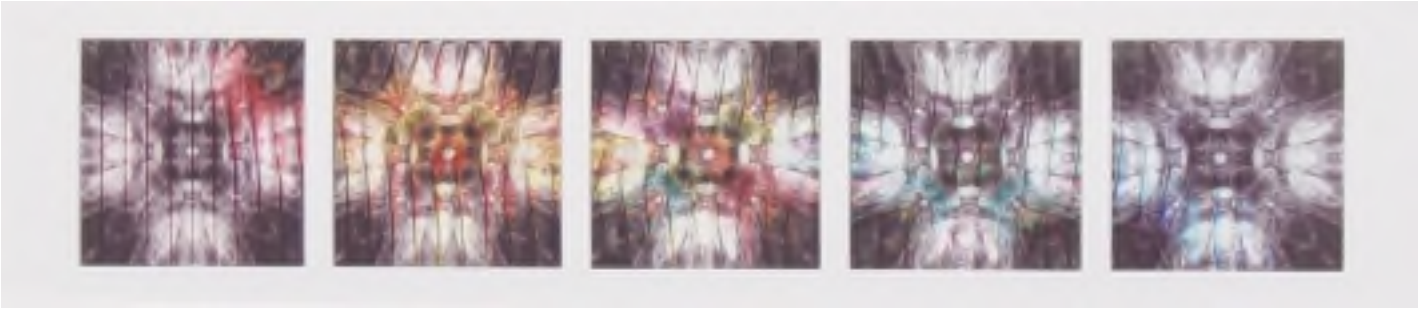

FAIRY'S DREAM
126 centimeters x 28 centimeters

A fairy welcomes spring by colorizing the monochromatic space with saturated colors. The trace of fairy is expressed by the diagonal stitch of the printed fabric. When the work is viewed from the left, a monochromic image can be seen, and as the viewer moves to the right, a colored image emerges. Thus, this work encapsulates time passing as the seasons progress.

The base images were rendered in 3D onto the fabric. Then the fabric was hand-stitched to create physical creases.

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ANNA URSYN

CITY MATTERS
36 inches x 36 inches

In my work, I use the computer on different levels. For my two-dimensional works, I have been programming in Fortran IV then Fortran 77 using Cyber then VAX mainframes, and Interactive Graphic Library (IGL). I have been setting color combinations, transforming light intensity, applying grid patterns and moiré effects in order to gain composition. The two-dimensional programs serve as a point of departure for photolithographs after computer programs and photo-silkscreened prints on canvas and paper; they are included in both my two-dimensional and three-dimensional works. Scanners, digital camera, and PPC serve for further image manipulation. All of these approaches are combined for image creation with the use of painterly markings. Printouts have been obtained in several ways: first, black-and-white plots from the Versatec plotter and color slides via the Computer Output Microfilmer (COM) recorder, then inkjet printers/plotters.

For three-dimensional works, I have been programming in Fortran to make representations of masses in a vector mode. Then, the wireframed objects are transformed by scaling, rotating, stretching, assigning various perspectives, and changing the point of view (the center of direction of projection). I use computer programs as an inspiration for creating wooden and mixed-media sculptures. The wireframe design serves as a guide in their construction. To initialize a sculpture, I multiply then superimpose the transformed images, and I often incorporate the factor of time into the sculpture, giving the viewer the illusion of movement.

I draw inspiration from processes and events in nature and science while working on my computer-generated images. Several of my works are inspired by geology. At the same time, this approach supports my instruction in computer art. Students create artworks inspired by science, and the themes of the computer-art assignments are enriched with their learning process, when they analyze a concept to show their understanding of it.

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TINA BELL VANCE

STILL LIFE WITH HANDS
26 inches x 16 inches

STILL LIFE WITH FOOT
13.3 inches x 13.3 inches

STILL LIFE WITH TORSO
17 inches x 19 inches

My work deals with the beauty of erosion and disintegration. I am particularly interested in the idea of the body as a structure or object. The dispossession of these structures is both mysterious and intriguing to me because I find an amount of personal discovery within the exploration of these places.

The concept of the body as an object or structure is also fascinating to me. I view the body as housing for the soul: the spark within us all that makes us unique and gives us sentience. The act of disconnecting and re-associating individual parts of the body asks the question: "If a part of the body no longer belongs to the whole, does it still contain that spark?"

My imagery is about displacement and unrest. Each piece is an emotional environment. I invite viewers to explore and question their preconceived notions of how they view themselves and the world around them. In creating these places and tableaus, I question my own ideas about traditional art forms and beauty, and redefine my aesthetic notions to include new ideas about shape, form, and structure.

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ROMAN VEROSTKO

CYBERFLOWER DUET, RED & GREEN
Two framed works, 27 inches by 35 inches each

A new frontier. For close to 20 years I have been developing a program of "form-generators" for initiating and improvising art-form ideas. The creation and control of these generators provide an awesome means for artists to integrate form-growing concepts in their creative process.

The artwork. My work joins algorithmic procedures with traditional practice. Thousands of lines in each work are drawn with a multi-pen plotter coupled to a PC. The pen plotter, with an ink pen in its drawing arm, draws each individual line using pigmented inks on rag papers. A close look reveals the cyberflower color fields as very closely drawn lines achieved with disciplined precision. The stroke in the lower left identifies the initiator for these strokes. This stroke embodies the controlling information with which every pen stroke within the entire work was improvised.

Content. My software has evolved by stages, yielding series of works at each stage. In turn, each series, as a family of forms, has distinctive formal qualities associated with its form-generators. Yet each work within the "family" enjoys its own unique form of reality. As a unique reality in itself, the artwork does not represent some other reality. To the question "what is it?" one could respond as some abstractionists did in the late 1950s: "IT IS." Just as a botanist might label a newly discovered flower, so also I label this or that newly made visual form.

Meaning. The works are visual analogues of the coded procedures by which they grew. For me, they celebrate the information-processing procedures driving today's culture. They invite us to ponder how the stark logic of a coded procedure yields such surprising grace and beauty. By doing so, they serve as icons illuminating the mysterious nature of our evolving selves.

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DIANE VETERE

CONFLAGRATION, 2002
12 inches x 30 inches

Hmmm ... It could be a painting but then again, maybe it's not. With Photoshop and a few favourite third-party plug-ins, I can achieve effects that are very painterly and yet intriguingly not. At first, I tried to emulate natural media, but now I try to blur the line between something that seems to be created on canvas or paper with paint, and something obviously created on a computer. My inks, and the papers I choose to print on, are very much a part of the process, and the final piece for me is always the final print, even though the image was created completely on the computer. There are always subtleties in the printed piece that just are not visible on the computer screen. That final surprise is the payoff for me.

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ATMAN VICTOR (artistic name)
JOSE LUIS MENDEZ (birth name)

THE INNER OFFERING
30 centimeters x 45 centimeters

I have been an artist since I was a child. I have been drawing and painting since I was 10, and I was even awarded several art prizes during my school years. I have no academic background apart from this. Prior to finishing primary school, my drawing teacher advised me to devote myself to the study of art, but my narrow-minded parents discouraged me and didn't support my idea, so I had to resign and attend secondary school.

Now I am a professional artist. I need to create. Art gives me power and releases my fancy. The only thing I do as a hobby is write poems in English from time to time.

I consider myself a fine artist who uses the computer as a pictorial technique.I feel truly free using my computer to create art. It offers me a creative world full of boundless possibilities.

I have used many software programs (including AutoCAD and 3DStudioMax). My main goal with the computer is to produce fine art, not high-tech design. I feel very comfortable working with several 2D and 3D programs like Photoshop, Corel, Painter, Bryce, and Poser.

The best explanation of my creative process in front of the computer is that there's no fixed outline. Presently, I am particularly involved in surrealism and in quest of a new language for digital abstractionism.

I am usually very anarchic in my creative process. The most outstanding feature of my work is that it bears the sign of a spiritual perfectionist.

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JAMES FAURE WALKER

STUDIO CHAIRS 2002
Giclée iris print
24 inches x 34 inches

DRAWN TREES 2002
Giclée iris print
25 inches x 32 inches

Lately, I have been thinking more and more about drawing, and some of these ideas are becoming part of the work I make. I draw the same motif (a tree, a chair) switching between a brush and a Wacom tablet, and play around with the differences. For someone like me, who has both a painting studio and a digital studio, drawing with line is one of the options that bridge the gap between media. I still don't know the right term to use, because though I usually end up with a giclée iris print, I do not feel I am a digital printmaker, a computer artist, or a digital painter. If I identify this work as "drawing," and my larger paintings, which use similar techniques, as "drawn paintings," then I am getting closer. What excites me is the continuing convergence between painting, photography, and the digital. The processes, techniques, and, of course, software can be so rich and surprising I sometimes feel like standing back and letting the pictures make themselves without any interference from me.

I have been using prefabricated components, sections of cardboard that I paint and build into temporary constructions before photographing. When I reassemble these drawings, which are overlaid with digital drawing, I may introduce quite arbitrarily an unrelated photo, a street scene. This may hold the attention and subordinate the rest of the picture, but it can also lift the mood of a picture and activate latent contrasts.

In "Studio Chairs," there are two chairs, one a small model in cardboard. The "drawing" is laid around the floor, the picture surface, and I suppose the overall atmosphere is of uncertainty: the confusion and mess that is often the necessary prelude to a spell of creative activity.

"Drawn Trees" reflects on the interplay between the drawn and painted motif, which is more or less repeated, not by copy and paste but by my autopilot memory. Gouache drawings, trees painted on boxes, are photographed, and pattern brush drawings (sampled from the gouache) all coalesce in the same space.

JAMES FAURE WALKER

PIGEONS, KYOTO 2002
Giclée iris print
29 inches x 43 inches

FIGURES IN A LANDSCAPE 2002
Giclée iris print
32 inches x 36 inches

The "Pigeons, Kyoto" title refers to the central motif. The rest of the piece consists of large-scale cardboard paintings and structures reassembled and drawn over. I poached the central motif from one of a series of works that emerged from a trip to the Nagoya ISEA conference in 2002.

"Figures in a Landscape" is the title of a picture that used a much larger (12 feet x 10 feet) initial study as a ground, which consisted of motifs developed from small doodles, derived from an evening spent at a flower-arranging demonstration (I was the only male there, but got through my embarrassment by realising the dandified geometry/botany had possibilities for the digital artist). I tried several ways to resolve this in its digital stage, but one night I recalled that I never quite made proper use of one of the hundreds of photos I had recently taken in Japan. The couples with the umbrella are in Kyoto, and there could be some small affinity between the wetness of the paint and the rain.

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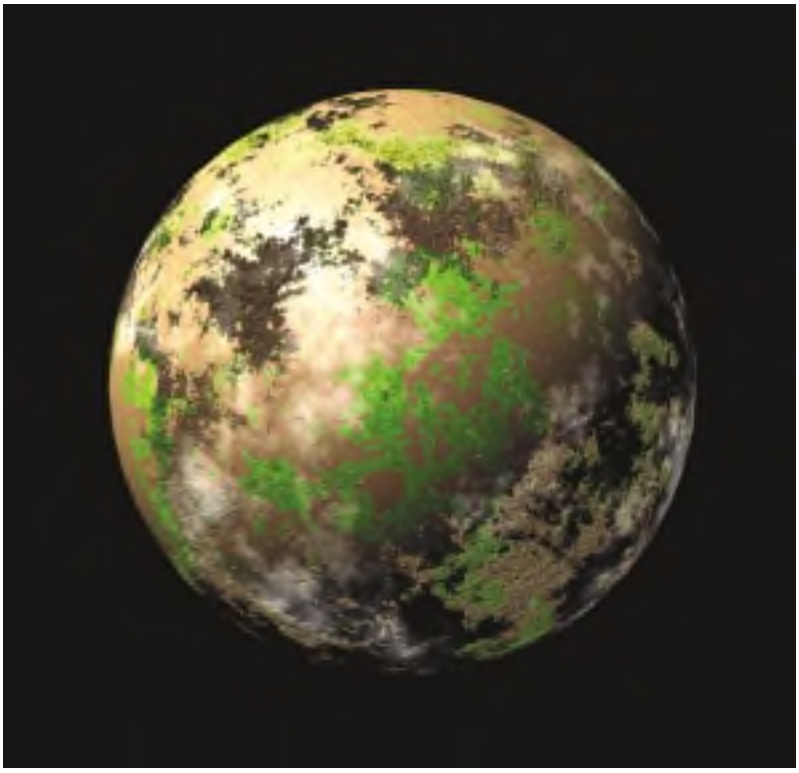
BRUCE WANDS



THE EARTH IS ART
64 inches x 64 inches

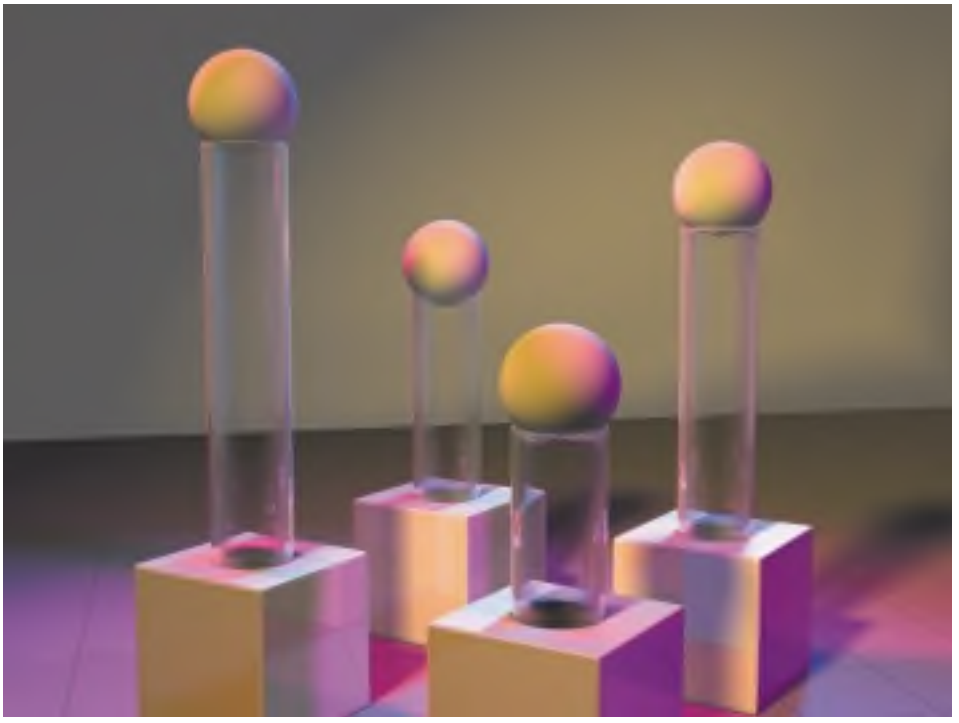
This image is an abstract impression of the earth. The initial sense of familiarity that has developed from our many years of looking at the earth from afar is brought into question by the unreal landscape. The idea for the image came from realizing that the word "art" is contained within the word "earth."

I started by experimenting with traditional 2D imagery and then moved to 3D using Alias|Wavefront Maya. My plan was to make a globe that had aesthetic value, was somewhat recognizable as the earth, but was also very different. It was developed from a visual and compositional approach, rather than from a geographical one. The intention is to draw viewers in through the obvious association with the earth, and then to engage them though the details contained within the globe: the surfaces, textures, and colors. Since we are all so familiar with this view of the earth, our eye naturally searches for recognizable patterns where none are to be found, much like the game we used to play as children making shapes and animals out of the changing patterns of clouds.

This image was part of the International Exhibition that was held at the National Museum of Fine Art in Beijing, China 31 May - 18 June, 2001. It was also included in ASCI DIGITAL 01: Our Sci-Tech World Exhibition in which "artists and scientists focus on print images that reflect the world of science and technology" and was on exhibit 29 September - 25 November, 2001 at the Technology Gallery, New York Hall of Science and 7 December - 25 January, 2002 at the Silicon Gallery in Philadelphia.

I am now working on a series of globe images that is based on several different nations around the world. I will use different national statistics, such as the percentage of water versus land, the various elevations of the country, economic data, and population density, as parameters to define the different surface properties. Additional source material will be the national colors of the country and satellite photographs. The viewpoint will be from outer space looking directly down at the country. Once the data have been input, I will then modify the globes from an aesthetic viewpoint. The final images will reflect the diversity that exists in the various countries of the world, along with the similarities that they all share as members of our planet.

BRUCE WANDS



VARIATIONS 703
3D multi-channel music using GPS data
Image by Yaron Canetti and Sheng Fang Chen
3 feet x 3 feet

"Variations 703" is an interactive music installation that engages viewers by allowing them to control the music they hear by playing with the sculpture. The music is written for multiple channels and composed in such a way that it can be listened to with any combination of the channels. The music that is heard at any moment in time is infinitely variable by moving the balls on or off the tubes to control the volume of each channel. An outer group of speakers provides the 3D sonic environment for the piece, and an inner group of speakers built into the tubes of the sculpture are for people to interact with. The music is played back through synchronized DVD players. The image above is a 3D visualization of the installation at the Stedeliik Museum het Toreke in Tienen, Belgium, April-June 2001.

GPS and time data were used to provide the foundation for the music. The source of the GPS data varied from everyday journeys to historical events. The principle behind the music composition process is based on the temporal nature of music and our daily lives. As we move about every day, we create a three-dimensional path with an inherent time element. One interesting factor about the historical events is the opening of a "window in time." Other than the trappings of modern civilization, the sounds of a forest, sea shore, or historical building (cathedral, for example) do not change significantly over time and are relatively the same as they were hundreds of years ago.

The GPS and time data from the chosen events were translated into a three-dimensional music playback system. The time stamp of the points was scaled to fit the length of the music, and the three-dimensional GPS data were fed through multiple music channels to generate a specific sonic location. Artistic license plays a major part in turning these data into a piece of music. Using the GPS and time data as the basis for the composition, several channels of music were then layered over this sonic structure to create the final piece. Future options include live performances in the gallery space and incorporating video into the installation.

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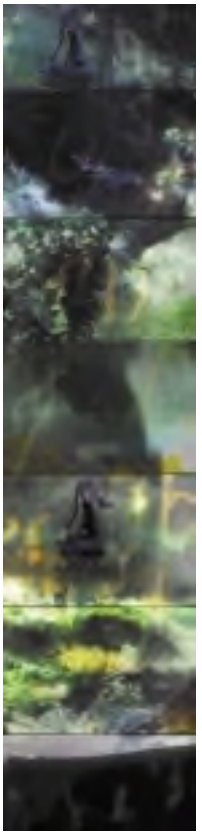

IN THE COUNTRY
16 inches x 51 inches

THE SPRINGS
15 inches x 52 inches

Originally trained as a painter and printmaker, I became involved with broadcast design and animation as it was emerging in the mid-1980s. I immediately began working with my new tools and creating time-based works: short 2D video/computer-animated poems.

These prints represent a return in my work to 2D image making. But they also represent something new (the beginning of an exploration of sourcing time-based works and bringing them into a unique impression): a single image. How will the content change as it moves between media? What is the relationship between a still that can be viewed indeterminably and a sequence of images unfolding over time? What about materiality in digital prints? Or the relationship of sequence to time in artists books? Once made, the still can be broken into pieces and ordered into time once more. This "intermedia" approach allows for new relationships and instances between stillness and motion and the framing of content.

In these particular prints, the vertical format allows me to work with a sequence of QuickTime frames. These are layered and manipulated, and include text from a dream. I am interested in exploring subjective experience as well as the multiple frames that create that personal subjective narrative. Using dreams, memories, and diaries as points of departure, I am interested in the spaces and transitions between our experiences that make the day to day that is the weave of our lives.

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ELLEN WETMORE

QUADRAFIN
11 inches x 14 inches
Iris print

BICEPHALOUS INTONARE 2002
27 inches x 21 inches x 4 inches
Plastic, aluminum, rubber, wired speakers, mini-disk player

MONSTRUM SERIES

SPINA ILLUMINATIO
11 inches x 14 inches
Iris print

I am deeply interested in monsters, not the terrifying kind, but an undiscovered sort of fantastic fauna. Rather than manipulating once-living creatures, I prefer to play these issues out digitally and with traditional sculpture materials. I am also interested in skeletal anatomy as the formal and practical problem of line, levers, and hinges, and blood vessels as signal-bearing audio and electrical cables.

This is a set of drawings and sculptures that explore my ideas of fantastic fauna. This is my way of being Dr. Moreau or Dr. Frankenstein without the corpses or the smell. "Bicephalous Intonare" is a two-headed creature wired with speakers that moan and breathe. "Spina Illuminatio" is made of similar materials, but it illuminates according to available light (or, actually, lack thereof). These characters are mounted under plexiglass in hand-built, wall-mounted, display cabinets. The installation also includes two drawings: "Quadrafin" and "Monstrum Thyrsus."

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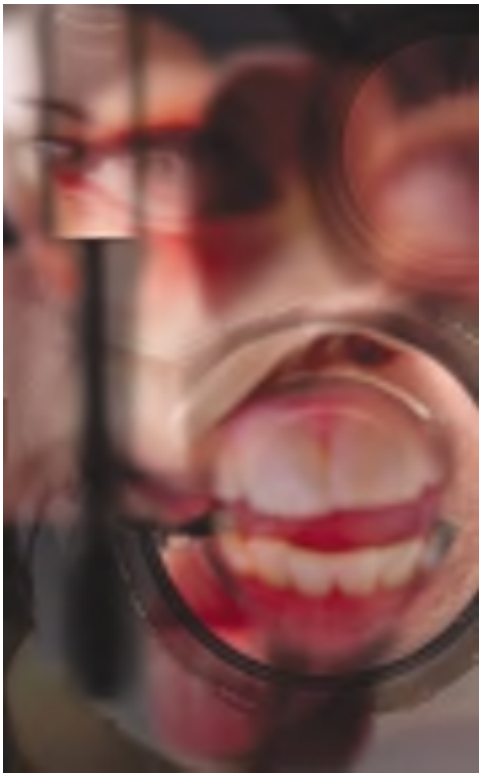
CARRIE WILSON



ANIMA
24 inches x34 inches

Ever since I purchased a digital camera a year ago, I have been obsessed with capturing images of myself in order to piece together how I appear to others. However, with the power to discard the less appealing photos, my collection quickly became slanted less toward the truth and more toward presenting a very composed and glamorous image. This piece was the result of taking the more "honest" self-portraits, combining shots from multiple sessions with scans of articles from my make-up bag. The resulting image seeks to personify the vanity that feels inherent in creating the original self-portraits, a necessary evil in my path to finding myself.

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BOB WITTE

WISH
6.5 inches x 17 inches
framed size: 12 inches x 22 inches

I have been actively pursuing the nuances of fine art photography for over 35 years. Now I embrace the "digital darkroom" as a liberation for exploring the destruction of realistic photographic images for creative purposes. I believe that great art poses questions that require viewers to supply answers; as many questions and answers as there are viewers.

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GUAN HONG YEOH

STONE-TOPOLOGY
42 centimeters x 42 centimeters each

If we say stones are the pages of Earth's diary, then it is not surprising to find our human art on these pages. These pages recount the details of the whole story of our human art evolution.

In 1879, Señor Marcelino de Sautuolo found the first art painting on the rocks in Spain. This cave-art painting not only acts as evidence of our art foundation, it is also a representation of human imagination and creativity. Such human imagination and creativity enable us to communicate our understanding in ways that cannot be verbally expressed, if we truly believe "a picture is worth a thousand words," not only in its descriptive value but also in its symbolic significance.

Stone can be seen as a marker of the boundaries between art and life. It is also the embodiment of culture and nature (Harper, Glenn, 1997). Because it is a primal element of nature's identity and container of a history, stone is the key element of bringing art and aesthetic experiences into life today. Stone as art, art as stone, there are no differences between the two. "Stone" can be seen as a representation of natural material that can be used to express an abstract intellectual form and the contemporary ideas in art development

In fact, stone is the oldest material used by humans.

This artwork emphasises the relationship between humans, nature, and art, and how this relationship re-examines and is applied to artistic creation and the thinking process. All the images have their own interpretations. "Thought" expresses emotion, while images promote the aesthetic principles of art and nature.

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YAYOI YOKOYAMA

CRYSTAL BOX

I have been making work based on the theme that things like flowers and jewels are always universal. This work is based on the childhood memory of opening a toy box and a jewel box. It includes various jewels and laces, and glasses made with 3D computer graphics.

The work was created with the very simple method of rotation symmetry. But the variation of the geometrical pattern is based on changing parameters of the symmetrical shaft, so the rotation angle cuts off the image in unexpected ways. Using the computer reduced the time required to create good symmetrical repetition. Eventually, the images started to become more complex, resembling flowers and fruits and crystals that changed over time. The completed image feels like a kaleidoscope view of the materials.

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ALBERT YU

INTO THE AIR'S MEMORY

"Into the Air's Memory" is a two-channel computer animation about an elusive aquaintance between a sound seeker who listens to memories of the dead and a woman who wanders aimlessly with an empty wheelchair.

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ANDRZEJ ZARZYCKI

THE COLLAPSE SERIES (NO.4, NO. 10, NO. 3)
24 inches x 24 inches

This series of images is a bridge between the artistic and the scientific, between imagined and empirical. They result from close study of reflections and refractions in transparent objects with radiosity-based ray-tracing software. Realistic calculation and visualization of reflections could potentially make this a boring and mechanical tool, placing it more in the photographic than the artistic realm. However, asking the "right question" and pursing "impossibilities" bring the study from purely scientific toward imaginative investigation.

The intention behind my work is to use art as a vehicle to study and understand the world, along similar paths as science, converging on a holistic and unified vision for reality. Furthermore, this study, not unlike Cubist and Impressionist work, seeks to broaden the definition of reality beyond "the eye" of scientific instruments into the realm of human perception: vision, not physicality, defines the world around us. The so-called creative process results from convergence of creation and discovery, imagining new ideas, and registering unnoticeable facts. The result of my approach and the simulation ability of computer graphics is the "what if ..." question.

What if we could control the physicality of our world (time, behavior of light, properties of materials)? We could experience with our eyes what computer simulation is doing for us. These images seek to document that reality. The artistic quest was primarily focused on studying the reflections and refractions within the virtual environment. The aspiration here was not to mimic or test with computer models the reality we observe. Rather, it was to fill the gap of what everyday experience precludes us from seeing. The scientific quest was provided by specifying various initial conditions and setting up limits to light distribution.

These images portray progressive refinement of an object by increasing a number of reflections. With each reiteration, light is allowed another bounce, thus revealing more and more of the object's form. The imagery portrays what the world would look (be) like if we could see individual strokes of light distribution before they get a chance to interact with other surfaces, with each subsequent step being more refined and a closer portrayal of "final" reality. In the process of refinement, transparent objects can become temporarily opaque, and colors can behave as momentary attributes, not permanent properties.

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JEN ZEN (a.k.a. Jen Grey)

CENTAUR
ColorSpan print on canvas (66 inches x 100 inches) or, Iris print on Velvet Somerset paper (33 inches x 47 inches, framed)

The computer is more than a tool. It is a medium that transcends traditional boundaries between fact and fiction.

"Centaur" is a mythic metaphor suited to the fusion of identity in human-computer interaction. The centaur bridged the age of men and giants, as the cyborg now bridges the age of human and artificial intelligence. The cyborg in "Centaur" is a life-sized, 3D drawing imaginatively developed in the semi-immersive computer environment of the Caltech Workbench, then edited in standard software programs. Although entirely fictional, the alien centaur becomes hyper-real in context with high-tech computer composites of Death Valley, affording poignant speculation on the paradoxical nature of life on earth. This work would not have been possible a few years ago, yet it respects influences by great artists of the past millennium: Ansel Adams, Magritte, Picasso, and Severini in particular.

The eerie "Centaur" is as much a product of computer interaction as of my own action. The cyborg was created as a consequence of beta testing tangible tools that Steven Schkolne invented to work with his proprietary Surface Drawing system (a project fostered by the Caltech Multi-Res Modeling Group). The life-size, 3D drawing appeared as ribbons of light beamed from my fingers as I worked. Strokes were shaped by hand gesture and curvature, and could be erased by holding fingers in different positions. I could see compound strokes fluidly joined and modified in-progress. This was fun, and astonishingly practical, yet I often developed the form without looking. That way I depended on kinesthetic drawing ability and could work faster than the computer-generated visual feedback image.

For more controlled results, I adjusted the tempo and complexity of freehand drawing to the processing speed of the computer motion-capture system. The computer simplified complex forms drawn too quickly. Ambidextrous sculptural drawing ability was fundamental to rotating and resizing forms with tongs held in one hand, while using the Cyberglove to draw with the other. The results are intriguing. Surface Drawing is responsive to spontaneous kinesthetic gesture in ways CAD programs are not. This is uniquely significant. Practical and esthetically functional forms of human-computer interaction should retain vital aspects of human touch.

Collaborator: Sheriann Ki Sun Burnham
Hardware: Caltech Workbench, Cyberglove, ChrystalEyes, PC & Mac Computers
Software: Bryce 4.0, Painter 6.0, Photoshop 5.5, Surface Drawing
Printer: Jack Duganne Ateliers (Color Span Display Maker XII)

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GEORGE ZUCCONI

UNCONTROLLED FLIGHT TO VEGAS
32 inches x 40 inches

I did not look for it. It came looking for me. And I don't know where it came from, but there it was. Pictures speaking to me, casting a spell. All I could do was follow. And I wanted to show others that magic, to let them see the wonder that is there, to make it plainly clear, to find the visible in the invisible. Everything in nature conforms to some design developed and refined by the test of time. Discovering the wisdom embedded in this natural history is always exhilarating. The commonplace is miraculous if rightly seen, if recognized. The richness of nature and life begs one to form a collage from its objects, to reassemble fragments in such a way as to form a new picture.

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COMPUTER ANIMATION FESTIVAL

Chair, **DARIN GRANT**
Digital Domain

SIGGRAPH 2003
SAN DIEGO

COMPUTER ANIMATION FESTIVAL COMMITTEE & JURY

COMPUTER ANIMATION FESTIVAL CHAIR

Darin Grant
Digital Domain

COMPUTER ANIMATION FESTIVAL COMMITTEE

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Festival Producer

Piotr Karwas
Electronic Theater Director
Digital Domain

Jill Smolin
Animation Theater Director

Mimi Chung
Titles & Graphic Design
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Electronic Arts

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a division of New School University

Joel Sevilla
Computer Animator

ALTERNATES

Mark Edwards
DreamWorks SKG

Darin Grant
Digital Domain

Piotr Karwas
Digital Domain

Jill Smolin
Animation Theater Director

COMPUTER ANIMATION FESTIVAL INTRODUCTION

The Computer Animation Festival is defined by one word: vision. Through its unique blend of the art and technology that can be achieved with computer graphics and interactive techniques, it has helped display the vision and achievement of the pioneering forces of our industry for the past 30 years. Each year, it serves as a mirror of what is possible today and a window into what can be achieved in the future. The Computer Animation Festival is internationally recognized and lauded as an event that serves to engage and inspire artists, scientists, engineers, designers, and students to harness the power of the digital image to explore the boundlessness of imagination.

This year's selections are no exception. Whether the piece is a fascinating story captured and told through the use of computer generated images, a creatively edited breakdown of the visual effects work from a professional studio, or a scientific showcase that gives us a glimpse at the edge of our ever-expanding technological horizons, it always represents the best that our industry has to offer each year.

For this year's show, the decision was made to present the Animation Theater materials in one larger-scale room instead of the multiple rooms that it has occupied in the past. While this gives the presentation more of a "theater" feel, it also forced me to limit the content presented in this venue. This limitation, combined with the 635 exceptional submissions that we received, presented this year's jury with a daunting but exciting challenge.

Each year, the chair selects a jury in an attempt to best represent the diversity of the computer graphics community. I worked very hard to pick individuals who not only represented technical, artistic, and cultural diversity but also worked well as a group to determine what should constitute "the best of the best." The jury worked late into the evenings to ensure that every piece was reviewed and that each piece that made it into the festival was reviewed multiple times. It is a credit to them as a jury that out of all of the submissions that made it into the second round of judging, only three of them had any major variance in the voting results. This program truly represents the jury's decision as a whole rather than any individual's force of will.

To me, the phrase "a picture speaks a thousand words" is never more appropriate then when I get comfortable in my seat at the Electronic Theater each year. Each frame that goes by is a statement of what can be achieved through the use of computer-generated imagery. I am proud and honored to have been able to contribute to this year's festival, but I would be remiss if I didn't give credit to those people who really helped to make this year's show a success.

ACKNOWLEDGEMENTS

This program would not have been possible without the efforts of numerous people who gave their time, energy, and support. Of these people, my deepest thanks go to Karen Sickles, this year's festival producer and my "partner in crime." Without her endless drive, production skills, and thick skin, this program would still be in its infancy.

When I volunteered for this position, there was one person I knew I wanted to have involved. Piotr Karwas is not only a talented animator, but also a former Jury Honors winner. His efforts were vital to the completion of the Electronic Theater program.

I was truly inspired and amazed at the efforts of our committee. I've always opted for smaller teams with more responsibility, and these people felt the brunt of my decision. I am proud to have worked with these wonderful individuals: Jill Smolin, Mimi Chung, Nafees Bin Zafar, Russ Glasgow, Ladd McPartland, April Ramey, Doug Badgett, and Richard Kidd.

The Computer Animation Festival would not be what it is if it weren't for the continuing and tireless efforts of the individuals who submit their hard work. I thank and congratulate each and every individual who had the drive and courage to submit their work to this year's festival.

The jury that I was blessed with this year continued the tradition of excellence associated with this festival and did so with incredible energy. Sam, Judith, Erik, John, Anezka, and Joel, it was truly a pleasure. The jurying process would not have been possible if not for Dave Moughalian and the Art Institute of California-Los Angeles. I thank them for the use of their facilities, their students, and for the incredible food that they provided.

My deep appreciation goes to the generous individuals at Digital Domain who supported me in this venture: Michael Taylor, Nancy Bernstein, Brad Call, Scott Ross, Yvette Macaluso, and Ed Ulbrich.

My friends, family, co-workers, and employees have supported me throughout this 18-month adventure. You all rock. To my fiancée, Djata, thank you for the love and support you've always given me in my pursuit of this "hobby." To quote my friend, juror, and former Computer Animation Festival Chair Judith Crow: "It was one of the best experiences of my life that I will never have again."

THE DATA

Total number of submissions juried: 635
Total number in the show: 77
Total in the Electronic Theater: 26
Total in the Animation Theater: 52
Total number of international submissions: 337
Total number of countries that submitted: 12
International submissions in the ET: 13
International submissions in the AT: 28
Student submissions in the ET: 5
Student submissions in the AT: 14

DARIN GRANT
SIGGRAPH 2003 Computer Animation Festival Chair
Digital Domain

ACKNOWLEDGEMENTS

SPECIAL THANKS TO

The Art Institute of California – Los Angeles
Digital Domain
Durrenberger Engineering, Inc. (www.dfrfx.com) - Film Recording Services
Industrial Light + Magic
The Post Group
Savannah College of Art and Design School of Film and Digital Media

ACKNOWLEDGEMENTS

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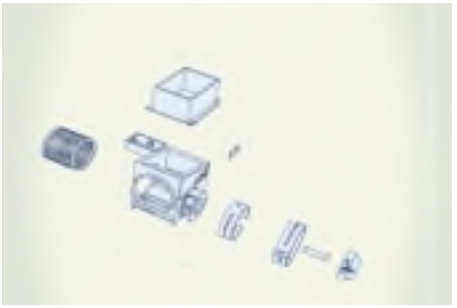
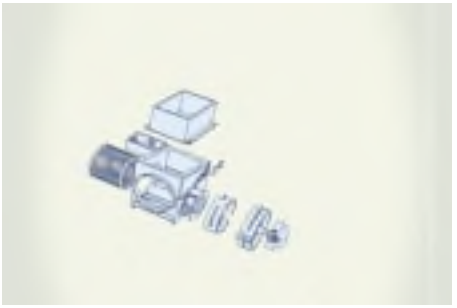
Eric Baldwin
Patricia Beckman
Kala Brinkman
Michael Cabrera
Gary Clark
Rich Cole
Kevin Coyle
William Day
Denese A. Duncan
Mark Edwards
Eric Elder
Matt Fairclough
Cheryl Fell
Paul George
Jami Gigot
Darren Hendler
Sheila Hoffmeyer
Piotr Karwas
Isaac Kerlow
Ann Kilhoffer-Reichert
Edward Kinney
Vi Ly
Jason Mayer
Dave Moughalian
Hal Miles
Dan Patterson
Kion Phillips
Franco Pietrantonio
Dana Plepys
Pedro Ramos
Scott Redlich
Rod Rebensdorf
Chef Sylvain Rivet
Charles Shami
Ron Silvera
Cindy Stark
David Stern
Nick Swartz
Michael Taylor
Kevin Thomas
Mark Thomasson
Aaron Valenta
Jessica Westbrook
Steven J. Weitz
Becky Wible
Chef Joe Zoellin

COMPUTER ANIMATION FESTIVAL TITLE SEQUENCE





The Computer Animation Festival features the best of the best computer-generated images and films of the past year. I've always believed that in some ways," computer art and graphics" is a contradiction in terms. So when Darin Grant first asked me to do this year's title sequences, I was thrilled to approach them with contradiction in mind and an equal amount of respect and irreverence.

I noticed that mechanical elements, once taken from their natural environment, could be viewed as works of art (Warhol's Campbell Soup cans, Duchamp's Bicycle Wheel). I began using excerpts from various technical guides and diagrams as a base design for this year's titles, focusing in on individual elements and pieces to represent both the technical quality and creative artistry that make up the Electronic Theater itself. When they came together, they formed a teapot (in this case, an electric one), a familiar mascot to the world of computer graphics.

The palette, consisting of six colors, provided an interesting challenge. Determined not to have a black background, I played with the saturation and opacity of each color and came up with the pale green backdrop and dark blue outlines. I also added texture to the environment and played with uneven lighting effects so that the finished product could retain a rough and unpolished look. I created the titles to each be slightly different from one another, then to make things more difficult, decided they would all animate differently too. The composition of each title design was planned carefully to not interfere with or take away from the actual titles of the films themselves.

I enjoyed working on this year's festival. I'm most grateful for all the people I worked with and for the ideas that were developed and supported. I hope everyone will enjoy viewing them as much as I enjoyed creating them.

Designer
Mimi Chung

Electronic Theater and Animation Theater Titles created by
The Savannah College of Art and Design

School of Film and Digital Media
Dean Edward Kinney

Director and Special Project Supervisor
Hal Miles

Supervising Lead Digital Artist
Hal Miles

Lead Digital Artists
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Cheryl Fell

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ANIMATION THEATER TRAILER

The Animation Theater is a large portion of the Computer Animation Festival and so, occassionally, the Computer Animation Festival Chair produces a trailer for that portion of the program to run at the beginning of the Electronic Theater. Not only does it highlight some of the work in this year's Animation Theater, but it also provides an opportunity to see some of that great work on a large screen.

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SIGGRAPH 2003 PAPERS REVIEW

The SIGGRAPH 2003 Papers Review showcases video segments from the Papers sessions in the Computer Animation Festival. This year's review includes new ideas for skinning models, layering animation, rendering skin, calculating shadows, and simulating cloth, smoke, and collisions. The humorous narration features the vocal talents of Chris Miller.

FEATURED PAPERS

Untangling Cloth
Baraff, Witkin, and Kaas

Shadow Matting and Compositing
Chuang, et al.

The Space of Human Body Shapes: Reconstruction and Parameterization From Range Scans
Allen, Curless, and Popović

Building Efficient, Accurate Character Skins From Examples
Mohr and Gleicher

Continuous Capture of Skin Deformation
Sand, McMillan, and Popović

Image-Based Skin Color and Texture Analysis/Synthesis by Extracting Hemoglobin and Melanin Information in the Skin
Tsumura, et al.

blue-c: A Spatially Immersive Display and 3D Video Portal for Telepresence
Gross, et al.

All-Frequency Shadows Using Non-linear Wavelet Lighting Approximation
Ng, Ramamoorthi, and Hanrahan

Precomputing Interactive Dynamic Deformable Scenes
James and Fatahalian

Realistic Modeling of Bird Flight Animations
Wu and Popovic

Real-Time Rendering of Aerodynamic Sound Using Sound Textures Based on Computational Fluid Dynamics
Dobashi, Yamamoto, and Nishita

Billboard Clouds for Extreme Model Simplification
Décoret, et al.

Nonconvex Rigid Bodies With Stacking
Guendelman, Bridson, and Fedkiw

Smoke Simulation for Large-Scale Phenomena
Rasmussen, et al.

Animating Suspended Particle Explosions
Feldman, O'Brien, and Arikan

Keyframe Control of Smoke Simulations
Treuille, et al.

Directors and Producers
Jessica Hodgins
Carnegie Mellon University

Joe Marks
MERL

Mark Edwards
DreamWorks SKG

Editing
Maurissa Horwitz

Magic Mirror
Chris Miller

Animation
Chung Chan

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ETERNAL GAZE

Best Animated Short

15:46

A poignant story about an artist, his art, and reciprocated love. Inspired by the life of one of the greatest artists of the 20th century, Alberto Giacometti, the film follows Giacometti through the last nine years of his remarkable life and journeys into the depths of his famously tortured psyche. Along the way, we experience the human conditions of despair, love, and hope that are as much a part of Giacometti's art as they are about the artist himself.

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Sam Chen

CG Artists
Sam Chen

Sound & Music
Jamey Scott

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TIM TOM

Jury Honors

5:00

Two animated characters, Tim and Tom, want to meet, but their creator does not permit it.

Directors
Romain Segaud, Christel Pougeoise

Distributor
One plus One

Producer
SUPINFOCOM Valenciennes

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ELECTRONIC THEATER

ADIDAS "MECHANICAL LEGS"

0:60

Adidas "Mechanical Legs" represented a unique challenge for Digital Domain. The story: A pair of robotic legs in a giant test facility come to life after hours and put the brand-new Adidas shoes to the test.This spot was entirely created by computer graphics. The performance was based on motion capture enhanced by keyframe animation. The challenge to create a photorealistic environment was solved by using high-dynamic-range lighting with high-resolution models and textures. For the table animation, Digital Domain developed a semi-automatic setup that always kept the platforms in syncronicity with the performance of the robot legs.

Director
David Fincher

Senior Vice President, Executive Producer
Ed Ulbrich

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Eric Barba

Animation Supervisor
Bernd Angerer

Compositing Supervisor
Feliciano DiGiorgio

Color & Lighting Lead
Richard Morton

Conceptual Designer
Jeff Julian

Compositors
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Character Set-Up
Giancarlo Lari

Camera Animation
John Allardice

Integration
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Baptiste Andrieux

VFX Coordinator
Eileen O'Connor

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Piotr Karwas

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AFTER YOU

2:24

What is etiquette? It is a power struggle for one and simply an act of kindness for the other. There is a thin line between good manners and manipulative behavior. "After You," is a comical play derived from that very line. Hardware: Dell computers, Samsung monitors, Apple G4 Macintosh, Yamaha keyboard, Wacom tablet, Sony digital video equipment. Software: Maya 4.0, Shake, Premiere, Photoshop, Painter Classic.

Director
Christopher Cordingley

Animation and Music
Christopher Cordingley

Producer
Ringling School of Art and Design

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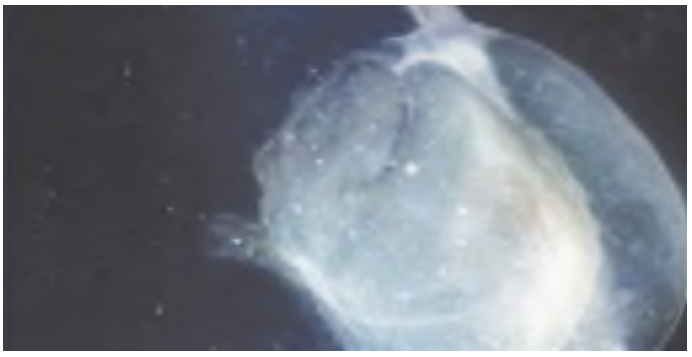
BJORK "NATURE IS ANCIENT"

4:16



Intricate Adam and Eve creatures have an abstract, primitive form and live in a fluid environment alive with microscopic life. Glassworks' 3D department developed these characters using NURBS modeling, adding layers of texturing to achieve the complex look of the characters. The membrane layers were particularly difficult to achieve. R&D developed a plug-in shader that essentially creates millions of soft particles that build up to form the membrane; this gets rid of all the hard edges of typical 3D geometry. The project was completed using Maya and Inferno, and the shader was programmed in C++. The project took a total of about eight weeks to complete.

Director
Lynn Fox

Producer
Nick Glendinning, Blink Films

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THE BOXER

5:29

In a dark room, a pair of boxing dolls stare at each other silently, as if they are frozen. Even with the smallest move, they cannot help hitting each other, since their feet are fixed to springs.

Director
Tae Sik Shin

Producer
Sung Jai Ahn

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CHAINSMOKER

3:46

An old woman in a nursing home badly wants to smoke, but is not allowed to. She's an old person struggling in a situation where she is suddenly being treated as a child and, therefore acting as one. The story is a celebration of the greatness of being small and very human, but also of one person's determination to never give up. "Chainsmoker" is mainly a one-person project made with very limited resources but with a lot of help from other people. It is Ulf Lundgren's first short.

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Ulf Lundgren

Contributors
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Mia Tinglöf

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DAWN

2:41

In our "Dawn" demo, we strived to create an attractive, realistic-looking real-time character to show off the power of programmable shading and vertex processing on the GeForceFX.

Director and Producer
Spellcraft Studio GmbH & NVIDIA Demo Team

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THE DEADLINE

2:30

Three animators struggle to complete a film as the deadline looms. This film was made for an Aardman retrospective in New York and was designed to show how the company's stop-motion heritage was not lost in the newly developed CG department. Like many of Aardman's early films, it is predominantly a lip-synch piece.

Directors
Stefan Marjoram, Wee Brian, and Dan Lane

Producer
Keri Maundrell

Contributors
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Keri Maundrell
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THE DOG WHO WAS A CAT INSIDE

3:22

The difference between these two animals represents inner conflict and learning to live with it. The visual style is inspired by the shapes and textures of Cubism. The animation is a mixture of traditional hand-painted and drawn animation and 3D computer animation. The dog/cat character was animated by hand, painted, and scanned. After being cleaned up and manipulated in Photoshop, the drawings were edited using Premiere and composited with cut-out animation in 3ds max.

Director
Siri Melchior

Producers
Andrew Ruhemann, Sian Rees

Contributors
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Tessa Lewin
Tanya Vardaki
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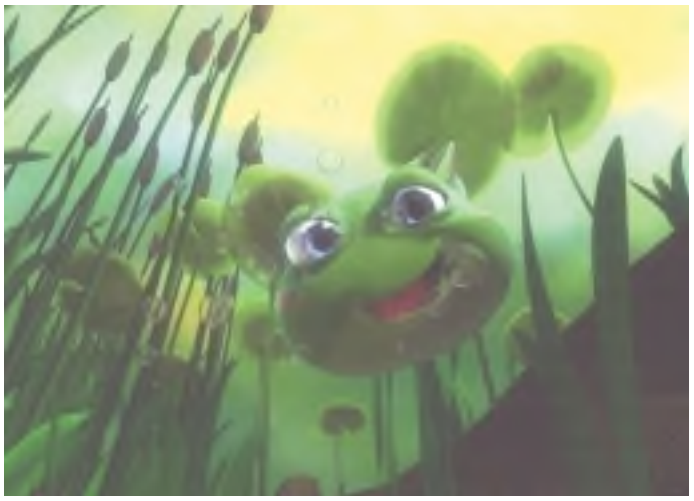
EARLY BLOOMER

3:32



A lighthearted story of a young tadpole discovering the awkwardness of growing up. This short subject began as in-house training exercise at Sony Pictures Imageworks to help its animators and effects artists learn the latest commercial and proprietary animation and rendering tools, and to explore visual story telling.The animation has a traditional sensibility, but the stylized, painterly look and ethereal underwater environment were achieved with refraction, caustics, particle and wake effects, and ambient occlusion.

Produced by
Sony Pictures Imageworks

Created and Directed by
Kevin Johnson

Associate Producer
Sande Scoredos

Music by
Mark Mancina

Edited by
Guy T. Wiedmann

Visual Development by
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Look Development by
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Adrian Iler

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Clint Colver

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Paul Jessel
Noel McGinn
Henry Sato
William Tessier
Jim Van der keyl
Kelly Wilcox Travers
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Sean Mullen
Troy Saliba
Brian Schindler
David Earl Smith
Pepe Valencia

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Harry Gunderson
Todd Hara
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Hae-Jeon Lee
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Jep Hill
Duffy Knox
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Sarah Moore
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Bruno Vilela

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Travis Price

Shaders
Laurence Treweek

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Corey MacMillan
Chuck McIlvain
Scott Parrish
George Richman
Ned Wilson
Natalia Zoubtsova

End Titles by
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Sound
Robert Gordon

Filmout Supervisor
Rob Bredow

Film Recording
Derrick Quarles

Negative Cutter
Boyd Steer

CG Pipeline
Alan Davidson

Training Support
Steve Prawat

Associate Producer
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Systems Support
Ted Alexandre
Hector Barrera

Post Production Supervisor
Jill Ragaway

Post Services Provided by
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Digital Conforming
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Music Produced by
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Executive in Charge of Production
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Special Thanks to
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EAT YOUR PEAS

1:55

There are times when people should listen to that little voice inside their head, and there are times when they should listen to the voice of authority. The difficulty lies in distinguishing the two. Hardware: Dell workstations, Samsung monitors, WACOM Intuos graphics tablets. Software: Maya 4.5, Shake 2.5, DeepPaint3D, Photoshop 7, Painter 7, Premiere 6.

Director
Paul Hargrave

Music
Ivan Kaplow

Piano
Pat Osborne

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EXIGO

2:56

Through the realistic fantasy world of the Exigo computer game, this animation portrays the death of a nameless soldier in the land of the Mordens. In making the animation, DIGIC Pictures assembled a team of experienced Hungarian CG artists. Their primary goals were to fully execute all details, reflected in the extremely thorough models, several-gigabyte character textures, and fineness of movement, and to create a visual world that uses graphics originally yet remains photorealistic, moving the viewer deeply both in detail and as a whole. Software: Maya, Lightwave, Pixar Photorealistic RenderMan, Apple Shake.

Director
Jenõ Udvardi

CG Supervisor
Gábor Marinov

Leading CG Artists
András Tarsoly
István Zorkóczy

Technical Director
Imre Tüske

CG Artists
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György Horváth
Gergely Káli
András Ketzer
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Iván Sarosácz
Attila Sziklai

Producers
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Matte Painting
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Concept Art
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GDF "DOLCE VITA"

1:07

©2002, Australie-Quad

The pleasure of using natural gas for home heating. A man floating on a bubble armchair, a woman flying down the stairs in a coat of feathers, another man bathing in a floating bath. CG tracking for all the shots: 3D Equalizer. Bubble armchair, white feathers, water: Modelling, animation on Softimage XSI. Rendered on Softimage XSI and Mental Ray. Compositing on Inferno. Hardware: Onyx, PC Bipentium 3. Software: Softimage XSI, Inferno, Combustion, Mental Ray.

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Agency
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Digital Visual Effects
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GONE NUTTY

4:45

Scrat from "Ice Age" reveals his private stash of nuts. One stubborn nut causes Scrat to lose his temper which in turn causes an avalanche of fun.

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Carlos Saldanha

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Producer
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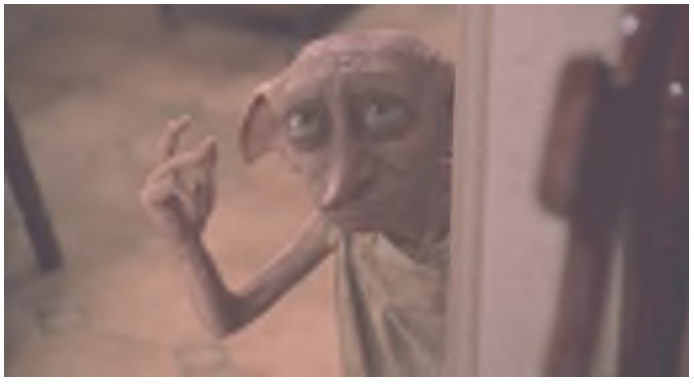
INDUSTRIAL LIGHT & MAGIC R&D SIGGRAPH 2003

4:36



Presenting an overview of Research and Development work done at ILM in the past year, focusing primarily on the characters in The Hulk, Terminator 3: Rise of the Machines, and Harry Potter and The Chamber of Secrets. Highlighted topics include creature skin and muscles, skin rendering, motion capture, rigid and deformable dynamics, image-based modeling, digital doubles, fluid and smoke simulation, 3D compositing, cloth simulation, and new animation techniques.

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R&D Director
Steve Sullivan

Producers
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Jason German

Title Credits
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Sabre Artist
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Help & Support
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Maria Lyons
Dale Brodt
Robert Gianino
Skywalker Sound
Bob Frey
Samir Hoon
David Meny
Doug Smythe
Seth Rosenthal
Duncan Blackman
Keith Johnson
Colin Brady
Chris Townsend
Saira Matthew
Nina Fallon
Mei Ming Casino
Michael Parkinson
Michael Cordova

Special thanks to the artists, developers, and crew of:
The Hulk
Terminator 3: Rise of the Machines
Harry Potter and The Chamber of Secrets

ILM Research & Development
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Additional thanks
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THE LORD OF THE RINGS: THE TWO TOWERS

3:40

From Tolkien's imagination to your screen via Weta Digital Ltd, Academy Award winning visual effects facility.

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Wellington, New Zealand

Visual Effects Supervisor
Joe Letteri

Visual Effects Producer
Eileen Moran

Animation Designed & Supervised by
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VFX Cinematographer
Brian Van't Hul

Software Development Supervisor
Richard Addison-Wood

Digital Models Supervisor
Matt Aitken

Animation Supervisor
Richard Baneham

Creature Supervisor
Eric Saindon

Animation Department Head
Adam Valdez

2D Supervisor
John P. Nugent

Digital Systems Architect
Jon Labrie

Massive Crowd Supervisor
Jon Allitt

Chief Technical Officer
Scott Houston

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Animators
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3D Sequence Lead TD's
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3D Lead TD's
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Director
Peter Jackson

Producers
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THE LORD OF THE RINGS: THE TWO TOWERS

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THE MATRIX RELOADED

3:05

Martial arts philosophy and technology converge in "The Matrix Reloaded." In order to execute the Wachowski brothers' vision of large-scale fight sequences with physically impossible camera moves, ESC Entertainment along with John Gaeta and the EON VFX department developed a unique virtual cinematography process. This process was used to construct fully virtual content containing everything from actor performance to dynamic events and entirely 3D backgrounds all contained in one moving frame. With over 1,000 computer graphics shots and 20 minutes of running footage, much of the physically based action in the film was made possible.

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MICKEY'S BUDDY

1:50

Mickey's life has changed forever since his dog died. He found a new dog to keep him company, though. He's a good dog, but he's always so lazy. He never wants to play ball or even go for a walk without a struggle. See what happens when a surprise visitor stumbles upon them. Hardware: Dell computers, Samsung monitors. Software: Maya 4.5, Shake, Premiere, Photoshop.

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Voice Talent
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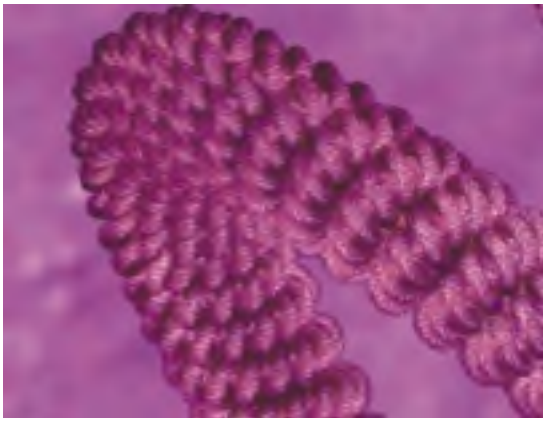
MOLECULAR VISUALIZATION OF DNA

3:05



These DNA molecular visualizations were created for the multifaceted DNA project, celebrating the 50th anniversary of the discovery of the double helix. The DNA project includes a five-part documentary series, a museum film, and online resources for teachers and students. The dynamics and molecular shapes were based on X-ray crystallographic models and other published scientific datasets. Leading scientists, including many Nobel Laureates, critiqued the animations during their development. Particular effort was made to ensure that the relative shapes, sizes, and real-time dynamics were as accurate as possible. The primary system used for building the animations was Maya PaintFX.

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POLAR BEARS "GARY'S FALL"

2:16

Captive polar bears Gary and his son Shane are playing football with an old tin. Just as mum Claudia warns Shane not to fall into the recently emptied pool, Gary falls in instead. He ends up with both of his arms in plaster, sticking out sideways, prompting the other polar bears to tease him relentlessly.The computer animation was produced over a seven-month period by animation house and post facility MacGuff Ligne in Paris using Maya software for the animation and their own proprietary software MGLR (MacGuff Ligne Rendering) for the rendering and compositing.

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Animation Production Company
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Alison Steadman (Claudia)
Trevor Peacock (Uncle Ian)
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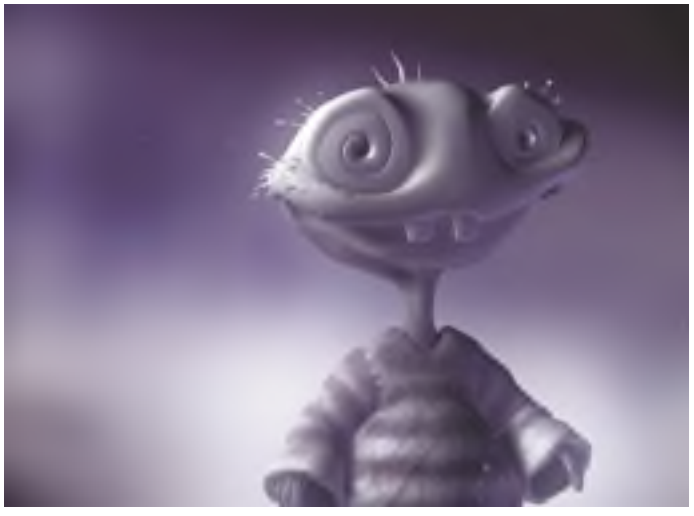
POOR BOGO

1:39



Inside the wonderful world of a young girl's imagination, Bogo has the best time in his life. Constantly laughing, playing, and eating candy, life couldn't get any sweeter. But when this beautiful world is confronted by boring and cruel reality, all the joy quickly fades away. Software: Maya 4.5, Renderman 11, Shake 2.5, Photoshop 7, Premiere 6, Sound Forge. Hardware: Dell workstation, Samsung SyncMaster 210T.

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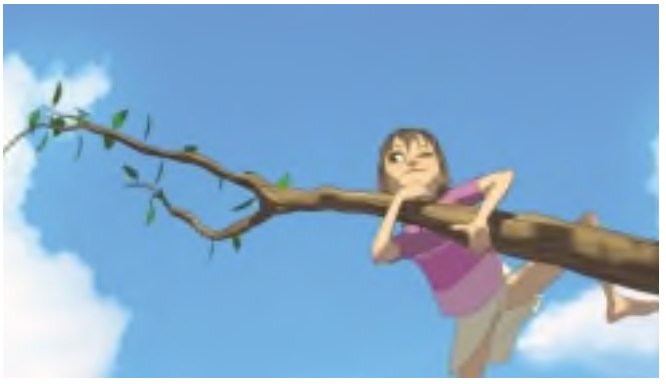
RESPIRE

3:47



3D music animation (toon shader) for a French rock band, completed in one month with a five-person crew.

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SHOW & TELL

4:19

Earl is a student in a dank Victorian schoolhouse. He is a bit of a misfit amongst his classmates, and it is his turn to do "Show & Tell." In a building crescendo of showmanship, he draws forth from his bag a barrage of items. The teacher, Ms. Beeble, does her best to control the ensuing anarchy, but Earl gets the better of her and has the best day of his life.

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Producer
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WARCRAFT 3: REIGN OF CHAOS

2:28

Vast landscapes, huge armies, great heroes. This beautiful and evocative glimpse into the story of "Warcraft" is the best representation of the lands of Azeroth yet created. All computer-generated, using all key-framed animation. Useful not only in generating soft-edged cloudy effects, these fields may also be used to derive isometric surfaces around volumes, and they are highly effective in representation of fluids. The "Warcraft 3" pre-rendered cinematics break new ground in computer graphics by bringing huge armies; cloak-enshrouded, long-haired characters; and photorealistic landscapes to the screen. Created on PCs running 3ds max. Compositing was handled using Adobe AfterEffects and Discreet Combustion.

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Producer
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X2: X-MEN UNITED

1:50

X2: X-Men United ©2003 Twentieth Century Fox

Cinesite Hollywood completed over 300 effects shots for "X2: X-Men United." With overall visual effects supervision by Mike Fink, the Cinesite Hollywood team created a new teleportation trick performed by Nightcrawler known as "bamfing." For fight shots, Nightcrawler's action was tracked in 3D in order to apply the bamfs: smoke streaming outward from the edges of his body, then instantly sucked inward as if drawn by a large vacuum, with residual blue smoke lingering in the air. The process utilized a combination of Houdini and in-house particle systems.

The Cerebro effect began with a digital set-extension shot made in Maya, in which CG portions of the spherical room were composited using Shake. A matte-painted world map element and multiple 3D volumetric layers were projected on the inside of the sphere. A huge flash of white light transitions the shots to the actual effect. White light represents people, and red light represents mutants, who were photographed against a green screen and composited into a spherical volume using Shake.

Approximately three dozen shots involved composites of practical and CG fire created in Houdini, and another dozen or so involved creating vaporous ice particles or physical blocks of ice, all created in Maya and Renderman.

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ANIMATION THEATER

AKRYLS

4:52

Let us enter the tiny universe of the infinitesimal.

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AUNT LUISA

2:20

This film features an aging widow who, through a Scotch-induced haze, has become convinced that bandleader Guy Lombardo and his Royal Canadians have taken up residence in her house. She hears them playing, but she's never actually seen them, as the performance is always happening in another room. Blur Studio wrote and produced "Aunt Luisa" entirely in-house, with the studio's team of artists and animators handling concept design, storyboards, and every phase of the animation process.

Directors
Tim Miller, Paul Taylor

Producer
Sherry Wallace

Contributors
Blur Studio, Inc.

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AU PETITE MORT

2:45

Attracted by the motion of an iridescently winged dragonfly, a predatory fish, driven by instinct and forces of nature, leaps from his ever-flowing river and in one sudden moment of carnal lust and abject destruction, takes a life. Rain falls, leaves blow in the chill wind, and the sky darkens as the fish re-enters his kingdom. Above, a brightly coloured float splashes into the water. Attached: a beautiful but barbed iridescently winged lure. Animated in a painterly style using Softimage, Flash and cell, with extensive layering of each scene composited in Eddie/After Effects. In HDTV format with an original musical score.

Directors
Jerry van de Beek, Betsy de Fries

Animation & Production
Little Fluffy Clouds:
Jerry van de Beek
Betsy de Fries

Original Musical Composition
Pop Tuna:
B.Z. Lewis
Monica Pasqual

Producer
Betsy de Fries, Little Fluffy Clouds

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BABY CHANGING STATION

1:22

Seeking a moment's peace in a mall bathroom, an exasperated father places his screaming, dirty-diapered child on a baby changing station and tries to regain his composure. The baby's screams seem to grow louder and show no sign of stopping. And then, silence. He's afraid to look, but when he does, transformation of his attitude is not the only change that occurs in this tale of diapers and drool, despair and delight. Hardware: Dell workstations, Samsung monitors. Software: Maya 4.5, Shake 2.5, DeepPaint3D 2.0, Photoshop 7.0, Premiere 6.5.

Director
Keith Osborn

Animation
Keith Osborn

Faculty Advisor
Jim McCampbell

Special Thanks
Debbie Osborn

Producer
Ringling School of Art and Design

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BERT

4:00

"Bert" is Moonsung Lee's first film and senior project at Academy of Art College, San Francisco. Story and animation by Moonsung Lee. Music performed by Trio Voronezh (except "Sad Bert's Theme," composed by Myungjoo Jung, performed by Vladimir Volochin). Hardware: dual Pentium3 800MHz. Software: Discreet 3ds max r4.0, Adobe Premiere 6.0, After Effects 4.1

Director
Moonsung Lee

Contributors
Trio Voronezh
Jed Diffenderfer
Jimmy Hayward
Oren Jacob
Dave Burgess
Andrew Leung
Hyunjoo Jung

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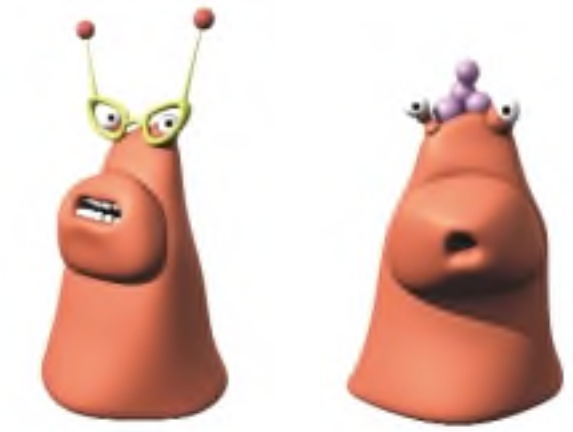
BLOBS

2:00



The new BBC 3 TV channel was launched recently along with its new identity, which features strange but wonderful characters called Blobs. Branding consultancy Lambie-Nairn, appointed to create the identity for BBC 3, wanted to use a character to act as an intermediary between the audience and the BBC. Blobs were originally created by Aardman director, Stefan Marjoram, as a lip synch test. They matched all of Lambie-Nairn's criteria for the BBC3 identity, so Aardman were then commissioned to develop Blobs for the idents.

Director
Stefan Marjoram

Contributors
Stefan Marjoram
Keri Maundrell
Bridget Mazzey
James Mather (Aardman)
Gary Holt
Charlotte Castle
Kara Penny
Matt Penney
Mario Filio
Olivia Bonner (Lambie-Nairn)

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CANE-TOAD

3:57

This animated short film is a toad's perspective of the dangers involved in being a wanted species. Young Baz has gone missing, and his good mate Dazza gives an insight into what may have happened to the little fella. "Cane-Toad" was made in a Brisbane "share house" by independent animators Dave Clayton and Andrew Silke, who took almost six months off work to complete the film. The short was made in Maya, edited in Premiere, and then rendered and composited in Inferno (HD) at Cutting Edge Post. More information and behind-the-scenes tutorials: www.cane-toad.com.

Directors and Producers
Andrew Silke, David Clayton

Compositing
Jeff Gaunt
Naomi Anderlini

Sound
Angus Gibbons

Music
GentlemenVoice: Paul Davies

Script Assistance
James Cowen

Facilities
Cutting Edge Post

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"CARL & RAY" CONTINUED: TIPPETT STUDIO 3D CHARACTER ANIMATION FOR BLOCKBUSTER

1:10

The continuing adventures of "Carl & Ray," those zany, furry Blockbuster Video spokes characters created by the artists of Tippett Studio utilizing their proprietary fur tool. In this year's montage, the Tippett team has further refined and built on the artistic and technical challenges of bringing photo-real house pets into the realm of the fantastic. Dancing, sliding, juggling, and dripping with water, Carl & Ray continue to entertain audiences worldwide while setting new standards for photo-realistic fur and 3D character animation.

Director
Steve "Spaz" Williams

Contributors
Tippett Studio

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Joel Friesch
Jim McVay
Scott Souter
and Frank Petzold

Lead Animators
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Eric Reynolds

Animators
Jim Brown
Raquel Coelho
David House
Patrick Lowery
Karen Prell
Morgan Ratsoy

Producers
Carol Corwin
Alonzo Ruvalcaba (Tippett Studio)
Clint Goldman (Complete Pandemonium)
Paul Renusch
Josh Reynolds (Doner)

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DAREDEVIL

2:11

To produce a compelling, subjective point of view for the title character in "Daredevil," Rhythm & Hues developed Shadow World, a visualization of echoes that bounce off objects in the environment, creating ghost-like images that dissipate with vapor-like transience. Shadow World represents the development of an advanced, production-tested set of volumetric tools, allowing a great deal of flexibility and control in the shape and appearance of three-dimensional density fields.

Producers
Avi Arad, Gary Foster, Arnon Milchan

Executive Producers
Bernie Williams, Mark Steven Johnson

Visual Effects Supervisors
Rich Thorne, Derek Spears

Visual Effects Producers
John Kilkenny, Rachel Fondiller

PRODUCTION MANAGEMENT

Visual Effects Supervisor
Derek Spears

Visual Effects Producer
Rachel Fondiller

Art Director
Doug Juhn

Digital Effects Supervisor
Nicholas Titmarsh

Compositing Supervisor
Hoiyue "Harry" Lam

CG Supervisor
Caleb Howard

Animation Supervisor
Steve Ziolkowski

Lighting Supervisor
Art Jeppe

Shadow World Compositing Supervisor
Sean McPherson

Digital Effects Producer
Paula Bonhomme

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Serge Riou

Digital Production Manager
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Joe Salazar
Kenneth Au
Marc Rubone
Matt Linder
Matthew Wilson

Director
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Executive Producer
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Oded Kassirer
Perry Kass
Sean Lee
Serkan Zelzele
Tony Barraza
Jimmy Jewell

Inferno Artists
John Heller
Kevin Moseley

Matte Painters
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Martha Mack
Dylan Cole

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Chad Shattuck
Erik De Boer
Hunter Athey
Steve Baker
Brian Dowrick
Danny Speck
Davy Crockett Feiten
Ethan A. Marak
Roberto Smith

Daredevil Lead Lighter
Pascal Chappuis

Lighters
Amie Slate
Betsy Asher Hall
Bridget Gaynor
D Wehser
Daev Finn
Evelyn Spencer
Gaelle Morand
John K. Goodman
John Paszkiewicz
Karl Maples
Lisa Clarity
Mike Roby
Scott Penningroth
Suponwich Juck Somsan
Thuc Nguyen
Tom Capizzi

Prelighter
Min

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David Palmer
Michelle Deniaud
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Shadowworld Effects Lead
Eric Horton

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Michael Frevert
Richard Stay
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Jateen Thakkar
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Phillip Holland

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Jonah Michaud
Sally Bunasawa
Ofer Nave
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Garrett Pendergraft

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Ken Roupenian

Tracking/Animation Set Up Department Manager
Anjelica Casillas

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Jenny Groener
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2D Department Coordinator
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2D I/O Flame Assistants
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Chris Moreno

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Mitch Matzkin
Carlos Solozano
Miguel Loza

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Saraswathi Balgam

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DIA DE LOS MUERTOS

4:07

"Dia de los Muertos" (Day of the Dead) is a film by director Kirk Kelley that captures the beauty, mystery, and sacredness of the ancient Meso-American holiday that honors and remembers those who have died. Combining stop-motion and CG characters, miniatures, and digital backgrounds and FX, Kelley creates a richly layered world that blurs the boundaries separating the living from the dead. Dynamic camera angles and lively music enhance the subtle, stylized performances of the living characters and the frenzied action of the spirits.

Director
Kirk Kelley

Credits Producer/Director
Kirk Kelley

Executive Producers
David Altschul
Will Vinton
Zilpha Yost

Producers
Mary Sandell, Rachel Walchak

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THE EIDOLONS OF EDNA

3:40

In Victorian England, an old woman living alone is plagued by poltergeists.

Director
Shane Welbourn

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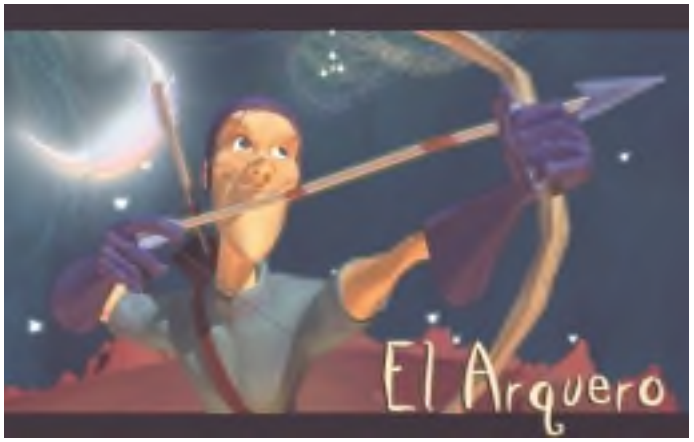
Producers
Shane Welbourn, Gina Welbourn

EL ARQUERO

2:16



An archer's wild shot leads to a frantic chase with the constellation Leo.

Director
Raphael Perkins

Producer
Vancouver Film School

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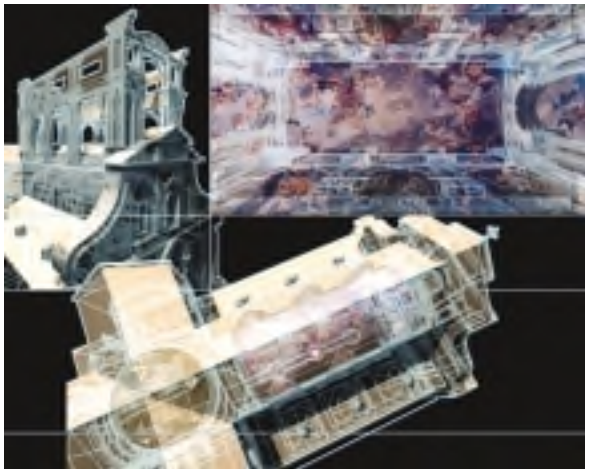
EMPIRE OF THE EYE: ANDREA POZZO

3:20



As part of the National Gallery of Art film series "Empire of the Eye," this excerpt illustrates two of the most remarkable illusionistic ceiling paintings in Italian Renaissance art. Commissioned in 1684 to paint an illusionistic dome and ceiling vault in the church of Saint Ignazio in Rome, Andrea Pozzo documented invaluable sketches and perspective treatises as he worked. These rare documents were scanned and imported as templates to recreate digital models of his work. CGI was completed using Alias|Wavefront Maya 3.0 and Adobe After Effects 5.5 running on Mac OS X.

Director
Joseph Krakora

Producer
Ellen Bryant

Art Director/3D Animator
Carol Hilliard

Animation Unit
Tangerine Studios

Editor
Tony Black, A.C.E.

Host
Al Roker

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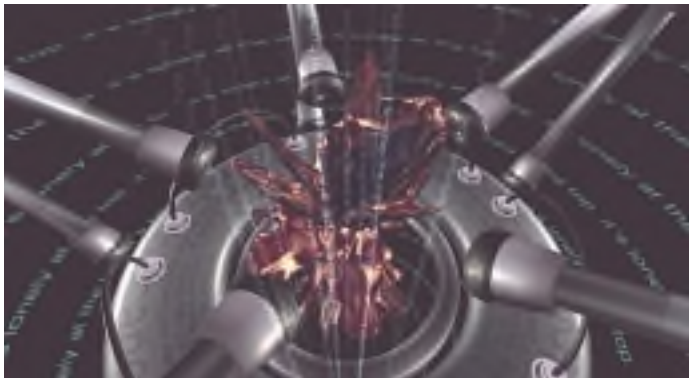
FR019: POEM TO A HORSE

2:56



"Poem to a Horse" is the spare-time work of a team of hobby artists and programmers. Using commodity PC hardware and taking only 64 kilobytes of storage (so everyone can download it in under 10 seconds and watch it using any reasonably modern Windows computer), it shows a plethora of abstract-yet-smooth objects accompanied by an electro-pop soundtrack. It explores the fields of real-time rendering, generative art, and the Kolmogorov complexity of visuals.

Director
Thomas Mahlke

Contributors
Dierk Ohlerich
Thomas Mahlke
Ronny Pries
Tammo Hinrichs
Fabian Giesén
Dirk Jagdmann

Producer
Farbrausch

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THE FUTURE IS WILD

2:52

"The Future is Wild" is a 13 part series for Animal Planet USA. The 422 Ltd. team of 30 animators, compositors, designers, and producers worked with John Adams Television to bring the series to life over an 18-month production schedule. The 70 minutes of 3D graphics incorporate 47 unique and highly diverse CG animals in real environments. Each animal was based on highly informed speculation by experts. The greatest challenge was creating believable animals within a tight schedule. 422 Ltd. achieved this through exacting artwork and pre-visualisation. "The Future is Wild" achieved the highest ratings ever for Animal Planet.

Director
Steve Nicholls

Animation Director
Peter Bailey

Post Production Supervisor
Mike Shirra

Senior Designer
Kate Finding

Producer
Paul Reddish

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GATORADE "23 VS 39"

2:51

Gatorade "23 vs 39" presented interesting challenges. The spot involves present-day Michael Jordan playing one-on-one against 1986 Michael Jordan. The challenge was to keep the performances fresh, creating the illusion that two MJs are playing one-on-one. Our approach involved finding a body double who could do all of MJs moves. Using computer graphics, "intelligent skin" technology, and image compositing, we convincingly replaced the body double's head with a perfect version of Michael Jordan's 1986 head in action in a variety of lighting scenarios.

Director
Joe Pytka

VFX Supervisor
Fred Raimondi

CG Supervisor
Brad Parker

VFX Producer
Stephanie Gilgar

Lead Technical Director
Darren Hendler

Technical Directors
Paul George, Brian Goldberg, Erick Miller

Hair Technical Director
Arthur Gregory

Modeler
Melanie Okamura

Texture Painters
Piotr Karwas, Dan Fowler

Flame Compositor
Julien Meesters

Executive Producer
Gabby Gourrier

Compositors
Sean Devereaux, Rob Nederhorst, Christine Lo

Rotoscope Artists
Laura Ormsby, James Kuroda, Byron Werner

Production Coordinators
Brian Peyatt, Kim Elliott

Character Animators
Bernd Angerer, Dan Fowler, Piotr Karwas, David Hodgins

Tracking Artists
Scott Edelstein, Ross Mackenzie

Paint Artist
Shannan Burkley

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GIANT CLAW / LAND OF GIANTS

2:20

Using Softimage, Mental Ray, and proprietary software we created 12 creatures for over 200 effects shots,ranging from the nimble Velociraptor to herds of Argentinasaurus, the largest-ever land creature. New challenges included integration and interaction of the creatures with a live actor and development of a full muscle-based enveloping system to create realistic skin behaviour. Technical developments in the animation rigs allowed for more naturalistic animation, while improvements in the lighting and rendering process gave greater flexibility at the compositing stage.

Director
Tim Haines
Jasper James

Contributors
Tim Greenwood
George Roper
Mike Milne
Max Tyrie
Sarah Tosh
Darren Byford
Daren Horley

Producer
Impossible Pictures for BBC and Discovery Channel

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GONE WITH THE WIND IN SIXTY SECONDS

1:07

The plot of the Hollywood epic "Gone With The Wind" is compressed to one minute, with hilarious results, in this short student film.

Director and Producer
Scott Chantler

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GRAVITIES

5:27

In this universe, gravity is generated with an enormous machine. But when the machine malfunctions, it is the beginning of the end, or the beginning of a meeting.

Directors
Thierry Bassement, Frédéric Gesquiere

Producer
SUPINFOCOM Valenciennes

Distributor
One plus One

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HARRY POTTER AND THE CHAMBER OF SECRETS

2:40

Using Maya, Houdini, and Renderman, the Framestore CFC teams created the climactic final sequence in the film. The chamber sequence features a painstakingly created Phoenix, whose digital feathers were the result of much original R&D work. The basilisk features in 45 shots and is notable for its detailed and characterful appearance. In addition, the blend of CG water and real water elements that place it convincingly into the chamber environment are a brilliant example of both 3D know-how and the compositors' artistry.

Director
Chris Columbus

Producer
Warner Brothers

Contributors
(Over 120 people worked on Harry Potter for Framestore CFC)

Project Supervisors
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Rob Duncan
Michael Eames
Sally Goldberg
Justin Martin
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HENRY'S GARDEN

8:10

The story of a monster who loves flowers but experiences a harsh transformation to his environment, "Henry's Garden" is a tale of joy, loss, rejuvenation, and the enduring power of nature. Produced on Windows NT workstations using Alias|Wavefront's Maya Unlimited, Right Hemisphere's Deep Paint 3D, Adobe Photoshop, and Adobe Premiere.

Director
Moon Seun

Producer
Kevin Geiger

Animators
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Kevin Geiger

Music
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Sound
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INFLUENCING BONE REMODELING IN OSTEOPOROSIS

3:55

Physician education on osteoporosis and the mechanism of action of Actone1®, a drug for its treatment. Bone is living tissue that is constantly renewed. Cells called osteoclasts remove damaged bone, and cells called osteoblasts replace it with new bone. Because estrogen suppresses osteoclast activity, postmenopausal estrogen loss causes an imbalance in favor of the osteoclast, that is, bone removal. When more bone is removed than replaced, bone thinning causes osteoporosis. Actonel is absorbed by bone and ingested by osteoclasts during bone removal. By interfering with cell function, Actone kills osteoclasts. Remodeling balance is restored and osteoporotic fracture risk is reduced.

Director
Jane Hurd

Screenwriters
Jane Hurd
Christine Young

Animators
Donald Tolentino
Jason Guerrero
Andy Wagener
Donna DeSmet

Title Design
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Producer
Amalia Delicari

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JOHNNIE WALKER: "FISH"

1:00

Real and CG elements combine beautifully in a startling commercial. A strong 3D component was necessary to create the shoals of swimmers. The team worked in Maya, using the Mel scripting language, to generate the CG people. The shoal shape was described using a few key people and then interpolating from that. Maya particle technology enabled technical directors to create vast numbers of people for the shoal shots. The dolphin-leap shots entailed swimmers being strapped to a rig and hauled out of the water at high speed. The rigs were removed in post, and CG characters were added to complement the live-action Inferno composites.

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3D R&D
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Inferno Artists
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Murray Butler

Technical Director
Andrew Chapman

Producer
Spectre

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THE LIFE OF MAMMALS

4:43

"The Life of Mammals" presents a fascinating and complete insight into an incredible group of animals. 422 Ltd produced the content graphics for the vast project, allowing the viewer to witness amazing scenes that would be otherwise impossible to film.

The animated sequences were created using Maya 3.0. The aim was to produce subtle, realistic visuals that were unobtrusive yet had a definite stylistic quality. The Dinohyus (pictured above) is a reconstruction of a mammal that is now extinct. It was brought to life in Avid Illusion where the 3D was assembled with live action elements. The result was a perfect illustrative accompaniment to David Attenborough's explanation of Dinohyus' movement and behaviour.

Animation Director
Mick Connaire

Animator
Andy Power

Compositor
Dave Corfield

Designer/Art Director
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Series Producer
Mike Salisbury

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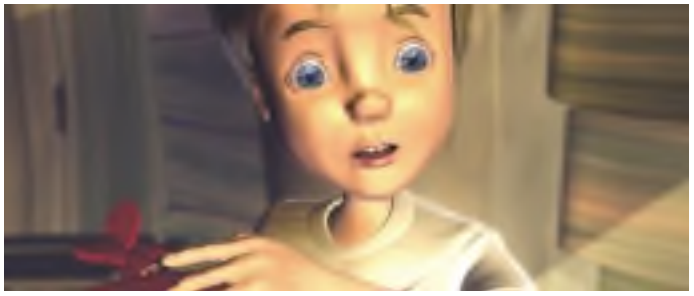
LITTLE RED PLANE

6:32



An animation about a seven-year-old boy whose imagination takes him on a spiritual journey with his red toy plane. This flight of fantasy transports him to an astonishing world where he is given an opportunity to reconcile his past.

Directors and Producers
Joey Jones, Wira Winata

Contributors
Michael Frantum
Jason Du
Deon Vozov
Howard Kouo
Tung Chow Hsieh
Prances Torres
Sammy Wong
Daniel Favini
Andrew Bunnag
Zac Wallons
Darin Velarde
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MEKARATE

4:30

An office worker whose failures require him to work overtime is haunted by a self-destructive wish and becomes anti-social.

Director and Producer
Hiroyasu Shimo

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MULTISENSOR FIRE OBSERVATIONS

5:07

From space, we can understand fires in ways that are impossible from the ground. New Earth-observing satellites capture the significant impact of fires on our planet. This animation moves from a sequence of global fires in 2002 to continental and close-up views of three significant fires in the western United States in the summer of that year: the Hayman fire, the Rodeo-Chediski fire, and the Biscuit fire. Particular emphasis is focused on the correlation of measurements from different satellite sensors. These sensors show many atmospheric and terrestrial phenomena that influence or are influenced by fires on Earth.

Director
Horace Mitchell

Lead Animator
Cynthia Starr

Animators
Randall Jones
Alex Kekesi
Kevin Mahoney
Marte Newcombe
Lori Perkins
Gregory Shirah
Eric Sokolowsky
James W. Williams

Narration
Jarrett Cohen
Fred Kemman
Michael Starobin

Producer
Scientific Visualization Studio

Editor
Stuart Snodgrass

Music
Robert Hitz

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MY BACKYARD

1:05

This visual-effects short was completed in six months time, as a school project. The goal was to achieve organic-looking animation on a robotic drone and realistically integrate it into photographed still plates. The key to success was a robust initial character design, which demanded carefully planned proportions in order to create the complex folding animation later on. All 3D elements were created in Maya, including the FX and the rendering.

Director
Christoph Ammann

Producer
Vancouver Film School

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NATIONAL MUSEUM OF AMERICAN JEWISH HISTORY

3:11

IOMEDIA produced animation for David Grubin Productions for a fundraising video for the new National Museum of American Jewish History, on the mall in Philadelphia, Pennsylvania. Because the architectural design was very preliminary at the time of production, IOMEDIA had to develop a rendering style that would not look computer-generated, so the design would not seem too "real." IOMEDIA produced extensive handpainted watercolors of the building elevations, surrounding site, and interiors in order to achieve this soft, impressionistic look.

Director
Eric Rosemann

Producer
Peter Korian

Contributors
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ODE TO SUMMER

2:37

"Ode to Summer" is an attempt to use CG technology to bring to life the art of Chinese ink brush painting. It has the usual elements found in Chinese paintings, like lotus, koi, lady, rock, tree, and calligraphy. All the objects are 3D geometry, and the unique Chinese brush strokes realized through a combination of models and shaders. Texture maps have been kept to the minimum, and it is adequate just to use simple lighting. Until now, animated Chinese paintings could be achieved only with difficult frame-by-frame handwork. With CG technology, they are possible.

Director
Ron Hui

Producers
Tony Neoh, Raymond Neoh

Contributors
Ron Hui
Tony Neoh
Raymond Neoh
Ling Xu
Moon Chen
Ong Kiem Ching
Laurence Meng
Kamiyu Guo
Paul Liang
Holic Chen
Polpol Shi
Lion Li
Roxanne Li Shi Ke
Bai Jing
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Fu Xinyong
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Panny Guo
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ON THE SUNNY SIDE OF THE STREET

4:30

A Harlem street scene in the 1920s. H.H. Sablin just wants to read his daily newspaper, as his bench-neighbour, Pit Doogey, acts very busy preparing a barbeque without taking any regard of Sablin. Under these conditions, their accidental meeting of both won't have a happy ending.

Directors
Wilhelm Landt, Joachim Bub

Producer
The Soulcage Department

Contributors
Wilhelm Landt
Joachim Bub
Elmar Keweloh
Mike Meyer
The Soulcage Department

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PINGWIN

2:52

A film about a penguin, made to a short orchestral music piece. Created with Softimage|3d. All textures were painted. Written and directed by the director of "Headless" and "Mouse".

Director
Wojtek Wawszczyk

Producers
Wojtek Wawszczyk, Georg Gruber

Contributors
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Kamil Polak
Alan Shamsudin

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PLUMBER

5:07

"Plumber" features Mario, who is determined to fix his leaky tap. It focuses on storytelling, design, and the latest technology. More than half of the film contains shots involving computational fluid dynamics, all shots of Mario involve dynamically simulated clothing, and every frame was rendered with a mix of traditional and advanced lighting techniques and global photon mapping. "Plumber" was modeled and animated with Discreet's 3ds max 4.2 and composited with Discreet's Combustion on NT-based computer workstations. It was rendered with Chaotic Dimension's VRay Renderer. Produced in association with Red Rover Studios Ltd. Produced in association with Bravo! FACT, a Foundation to Assist Canadian Talent supported by Bravo!

Directors
Andy Knight, Richard Rosenman

Producer
Randi Yaffa

3D Artists
Ben Pilgrim
Chris Crozier
Kyle Dunlevy
Mike Oliver
Raine Anderson

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PUPPET SHOW

1:26

In a puppet show-like full computer animation, an accident happens to the puppets.

Director and Producer
Maki Kawato

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RITTERSCHLAG (KNIGHT GAMES)

6:30

The full CG short film "Ritterschlag" was made by a small team in 13 months. Extensive pre-production with storyboarding, animatics, design concepts, and technical decisions prepared the 3D work. The dragon characters were created as NURBS surfaces in Maya. Knights, horses, and princess were created in Maya. The hair of the princess was realized with Maya Fur. The environment was modeled and rendered with Lightwave. A proprietary script allowed import and export between the two packages.

Director
Sven Martin

Animation
Sven Martin
Sebastian Frey

Character Setup
Martin Breidt
Sven Martin
Sebastian Frey

Technical Director
Sebastian Frey

Music
Marius Lange

Producers
Daniel Mann, Marco Gilles

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SAM

5:02

In the distant future of a galaxy very unlike our own, an otherworldly janitor named Sam begins his duties at the cargo distribution center of WGA-Minora Biocybernetics. In the midst of cleaning up debris and longing for a life other than his own, Sam is suddenly presented with an unsupervised cargo plane, a disk containing all the knowledge of a cargo pilot, and the opportunity for the misadventure of a lifetime. "Sam" is a student production. The project features animation done in Maya, effects in Houdini, textures in Photoshop, and compositing done in Shake and Premiere.

Director
Kyle Winkelman

Animation
Joshua Merck

Lighting
Ginka Kostova

Sound Design
Robin Beauchamp

Producer
Joe Pasquale

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SHINING LORE

2:43

The legend of eight heroes who connect the Age of Legend and the Age of Water. It has been several hundred years since the ocean disappeared, and the world is slowly becoming a desert. In this scene, Rune and three young heroes are protecting the secret they have discovered that will bring the waters again. The property was originally released as an online game and is now slated for a Korean television series. Animated and rendered in Maya 4.0.

Director and Producer
B.J. Park

Animation Director
Owen Klatte

Concept Design
Jake Parker

Modeling/Texturing
Igor Lodeiro
Ignacio Wilford
David Gurrea
Mihyun Park

Character Rigging
Chang Eui Im

Character Animation
Owen Klatte
Mike Kimmel
Ron Friedman
Mihyun Park

FX Animation
Chang Eui Im

Lighting/Rendering/Compositing
Chang Jin Im
Igor Lodeiro

Music and Sound FX
Voice of the Arts

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SOLDER MAN

3:52

"solder man" was created by Dave Novak between paying jobs at Crash & Sue's, using Maya. It's a story of creation, evolution, and problem solving. After experiencing a problem with his creation, solder man looks to solve his dilemma the only way he knows how: by soldering. With great effort, he is successful but finds himself in much worse shape. Then as luck or fate would have it, he stumbles across a substance that greatly expands his horizons. Life, though, is never without its problems, and in the end we are left wondering how much he has grown.

Director and Producer
Dave Novak

CG Artist
Dave Novak

Compositor
Jake Parker

Color Correctors
Sue Lakso
Demetri Kitsopoulos

Sound Effects
Echo Boys
Tom Lecher

Music
Alex Berglund
Billy Franklin

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SOULCALIBUR II ~ UNDER THE STAR OF DESTINY

2:28

This is the opening movie of the sequel of the world's best-selling weapon-based 3D fighting game. "Soul Blade" was released in 1997 and it was shown at the SIGGRAPH 97 Computer Animation Festival. Released this year, the sequel has become more exciting, and its graphics have become more beautiful. Namco proudly presents this new movie and welcomes you to the new stage of history.

Director and Producer
Namco Limited

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SPIDERWEB

0:51

For Rhythm & Hues, an animation house utilizing both proprietary and commercial software packages, the ability to freely exchange useful data between applications is essential. We model in our custom AND software, animate in Maya or Voodoo, light in Houdini, and render with our custom WREN, or any other combination depending on production needs. "SpiderWeb" is a charming R&D byproduct, with variations modeled in AND, animated in Maya, and passed to Houdini through "streams." Versions were then rendered as polygons or subdivided surfaces with both vMantra and RenderMan. The options become quite liberating in a modular pipeline.

Director
Sei Nakashima

Created & Directed by
Sei Nakashima

Animation Director
Christopher Romano

Music Composer
Steve Kutay

Sound Designer
Michael Miller

Sound Effects Editors
Michael D'Ambrosio
Tim DeLone

Produced by
Rhythm & Hues Studios

Producer
Stacy Burstin

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SPRITE "KEBAB"

0:30

A goblin in a kebab shop is brimming with innocent-yet-mischievous character achieved through 3D animation. The facial expressions and delicate arm and finger movements bring the "sprite" to life. The goblin was originally sculpted by hand and then made into a full latex puppet, which was laser scanned to provide 3D wireframes. Glassworks then applied high-resolution digital images of the original puppet to the wireframes to create the 3D model and give it texture. The 3D character took nine weeks to complete using Softimage XSI. The 3D animation was then composited into the live action by Inferno artists.

Director
Kuntz / Maguire

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Producer
Zoe Rogers

STAR TREK: NEMESIS

2:34

With weapons spent and shields exhausted, Picard rams the Enterprise into the bow of the Scimitar. Digital Domain built 1/45th scale models of the Scimitar's bow section and the Enterprise's saucer section for the scene and, at collision speed, drove them into each other. The miniature elements were lined up and blended seamlessly with the full CG versions of both ships. To create the interior Scorpion Bay destruction, a practical model of the sub-floor collapsing was built and composited with green-screen live-action elements, CG debris, CG scorpions, and a CG collapsing ceiling to match the practical set.

Director
Stuart Baird

Producer
Rick Berman

Visual Effects Supervisor
Mark O. Forker

Associate Visual Effects Supervisor
Kelly Port

Visual Effects Producer
Todd Isroelit

Computer Graphics Supervisor
Markus Kurtz

Compositing Supervisor
Darren M. Poe

Digital Producer
Andra Bard

Visual Effects Art Director
Ron Gress

CG Modeling & Lighting Leads
Jay Barton
Andy McGrath Waisler

CG Modeling & Lighting
Roger Borelli
Koji Kuramura
Errol Lanier
Simon Maddocks
Rory McLeish
Howie Muzika
Marc Perrera
Randy Sharp
Gaku Tada
Esdras Varagnolo
Aaron Vest
Bryan Whitaker
Andy Wilkoff
3D Animation Lead **Zachary Tucker**

3D Animation Artists
Aladino V. Debert
Scott Edelstein
Jon-Marc Kortsch
Aaron McComas

CG Effects Animation Lead
Chris Y. Yang

CG Effects Animators
Douglas Bloom
Matt Cordner
David R. Davies
Kevin Gillen
Cody Harrington
Keith Huggins
Joe Jackman
Jens Zalzala

3D Integration Leads
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David Niednagel

3D Integration Artists
Chris Dawson
David Krause
Debi Lyons
Heather Schlenker

T.D. Leads
Johnny Gibson
Jason Iversen

T.D.'S
Matt Fairclough
Jonah Hall
Richard Wardlow

Lead Digital Compositors
Brian Begun
Kevin Bouchez
Eric Bruneau
Sonja Burchard
Jonathan Egstad
David Lauer
Christine Lo
Lou Pecora
Donovan A. Scott

STAR TREK: NEMESIS

Digital Compositors
Heather Davis Baker
Krista Benson
R. Christopher Biggs
Gimo Chanphianamvong
Betsy Cox-McPherson
Robyn Crane-Campbell
Sean Devereaux
Bryan Grill
Sam Edwards
Kristin Johnson
Mark M. Larranaga
David Lebovitz
Dave Lockwood
Michael Maloney
Brandon McNaughton
Robert Nederhorst
Will McCoy
Perri Wainwright
Eric Weinschenk

Digital Matte Painters
Ronnie Bushaw
John Patrick Hart
Brian Ripley
David Shwartz

Digital Rotoscope/Paint Lead
Byron Werner

Digital Rotoscope/Paint Artists
Sophia Lo
Bill Schaeffer
Chris Wood

Visual Effects Editor
Heather Morrison

Assistant Visual Effects Editor
Val Keller

Digital Imaging Supervisor
Jeffrey Kalmus

Color Grader
Todd Sarsfield

Visual Effects Production Coordinator
Sarah Coatts

Assistant Visual Effects Coordinator
Evangeline Monroy

Digital Effects 3D Coordinator
Michelle Vivien Leigh

Digital Effects 2D Coordinators
Tom Clary
Steve Mellon

Walk-Through Coordinator
Amy Adams

Technical Assistant
Gary Siela

Visual Effects Director of Photography
Erik Nash

Miniature Supervisor
Alan Faucher

Supervising Mechanical Engineer
Scott Salsa

Lead Pyro Technician
Joe Viskocil

Miniature Photography Manager
Luke Scully

Miniature Crew Chiefs
George Stevens
Ken Swenson

Miniature Crew
Darryl Anka
James Anka
Corey Brown
Greg Bryant
Giovanni Dulay
John Joyce
Jason Kaufman
Frederick Ollman
James Peterson
Brett Phillips
J.D. Sandsaver
Mike Schaeffer
Nicholas Seldon
Scott Shutski
Richard King
Slifka
George Trimmer
Ted Van Doorn
John Warren

Mechanical Crew
John Lisman
Alan Randall
Doug Shemer
Richard Soper

Pyro Technicians
Bob Ahmanson
Tom Zell

Visual Effects First Assistant Photographer
A.J. Raitano

Visual Effects Second Assistant Photographer
Mary Sushinski

Camera Technician
Mike May

Electronics Engineer
John Higbie

Visual Effects Chief Lighting Technician
Tony Anderson

Visual Effects Lead Grip
Brian Marincic

Visual Effects Assistant Lead Grip
Kirk Greenberg

Visual Effects Lead Electrician
Dwayne Lyon

Miniature Rigger
Dennis Hoerter

Visual Effects Grips
Dustin Ault
Bruce Byall

Visual Effects Electricians
David Chase
Jeff Enneking
Darren Langer

Miniature Stage Manager
Jesse J. Chisholm

Visual Effects Accountant
Bekki Misiorowski

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Visual Effects Executive Producer
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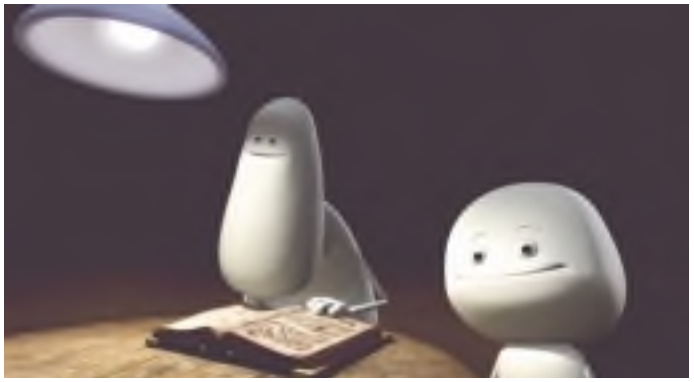
THE TALES

0:55



Two fellas, one big, one small, both buffoons, try to tell each other the classic fairytales and rhymes from an old, beleaguered book on a table. The trouble is, they just don't understand them. "The Tales" is a series of shorts designed to be intermediary pieces and space fillers. They range from 10 minutes to 28 seconds and cover the classics: "Jack and the Beanstalk," "Three Billy Goats Gruff," and "Rapunzel."

Director
Dan Lane

Contributors
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Wee Brian

Producer
Helen Brundon

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THIS WONDERFUL LIFE

2:11

A young woman mourning the death of her husband takes a walk into the countryside, feeling alone and withdrawn from life. Her sense of isolation is lifted when she discovers, beneath a bridge, an abandoned baby, still alive. As the woman and the baby begin to develop a natural bond, so her perception of what it means to be alive changes forever. Software: 3ds max, Photoshop, AfterEffects, Premiere. Hardware: 1.5ghz Athlon, 1.5gb RAM, 64mb GForce graphics card.

Director and Producer
Liam Kemp

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TIC TOC

2:59

Two naughty girls have a night out. They dance and have to cope with strange guys – and a handsome shark. Tic falls in love …

Director
Gunter Grossholz

Producer
Antje Krutz

Script
Gunter Grossholz

Animation
Gunter Grossholz
Martin Ferencei
Heidi Wittlinger
Torben Meier

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TIME WARNER "PIGS"

1:20

Pigs might fly! Pigs fly through the night skies over LA. CG: tracking for all the shots on 3D Equalizer. Modelling, mapping, skinning, render, and animation of CG pigs and wings on Softimage XSI. Compositing on Inferno: CG pigs with all the interactions, compositing of matte painting, color grading. Hardware: Onyx, PC Bipentium 3. Software: Softimage XSI, Inferno, Combustion, 3D Equalizer.

Director
Bruno Aveillan

Producer
Quad - Believe

Agency
SSNK New York

Digital Visual Effects
La Maison

Shooting Supervisor
Eve Ramboz

Graphic Artists
Eve Ramboz
Bruno Maillard
John Breslin

CG Supervisor
Luc Froehlicher

CG Artists
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Pierre Pilard
Bénédicte Legrand Robert

Matthieu Royer
Yannick Giaume
Ahmidou Lyazidi
Myriam Catrin

Rotoscopy
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TRAFFIK

1:00

A man and his dog try to cross a busy intersection. This animation was done over the course of seven weeks, using an Athlon 1Ghz computer with 1GB RAM. It was created using Alias|Wavefront's Maya 4.0 and Photoshop 7.0.

Director and Producer
David Bokser

Contributors
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Cheryl Fell
Larry Lauria

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UN AMOUR MOBILE

2:17

A short animation about two characters living on a mobile. The piece was inspired by French illustrations from the 1920s. To achieve images that suited this style, custom software was written to render the 3D animated figures. The animation style derives from 2D and 3D conventions, exploring and combining the spatial abstraction available to both. Production was undertaken as a BA-degree project.

Director and Producer
Ian Mackinnon

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VOLVIC: "JOG"

0:30

Framestore CFC put the hundreds of hours of dinosaur-building experience they gained from "Walking With Dinosaurs" to good use in Volvic: "Jog." Giving the CGT Rex a scraggy look to show that it had lived a bit enhanced the comedy. Eight weeks of post production enabled Andrew Daffy, Project Supervisor, to give the spot extra finesse. Inferno was used to make four matte paintings, sky replacements, all the volcanoes and smoke, the digital flies, and other details that heighten the scene's authenticity.

Directors
Liam Kan, Grant Hodgson

3D Supervisor
Andrew Daffy

Inferno Artist
Stephane Allender

Producer
Great Guns

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Stephanie Bruning
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WARCRAFT 3: REIGN OF CHAOS

18:14

Vast landscapes, huge armies, great heroes. This beautiful and evocative glimpse into the story of "Warcraft" is the best representation of the lands of Azeroth yet created. All computer-generated, using all key-framed animation. Useful not only in generating soft-edged cloudy effects, these fields may also be used to derive isometric surfaces around volumes, and they are highly effective in representation of fluids. The "Warcraft 3" pre-rendered cinematics break new ground in computer graphics by bringing huge armies; cloak-enshrouded, long-haired characters; and photorealistic landscapes to the screen. Created on PCs running 3ds max. Compositing was handled using Adobe AfterEffects and Discreet Combustion.

Director
Nicholas S. Carpenter

Contributors
Scott Abeyta
John Burnett
Nicholas S. Carpenter
John Chalfant
Jeff Chamberlain
Aaron Chan
Ben Dai
Joe Frayne
Jay Hathaway
Harley D. Huggins II
Jared Keller
Jon Lanz
Alen Lapidis
James McCoy
Matthew Mead
Dennis Price
Matt Samia
Mark Skelton
Patrick Thomas
Seth Thompson
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Producer
Scott Abeyta

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XXX

1:53

In "XXX," director Rob Cohen set out to create a new kind of action hero. In order to keep our hero at the heart of the avalanche sequence, Digital Domain utilized many techniques. The avalanche begins as an exploding charge extends cracks in all directions. Particle shaders in Houdini were used to model a subdivided geometry that would break apart. As the actor then skis toward Vranov (only inches ahead of the cascading wall of snow), greeen-screen elements of the actor were blended with live-action stunt plates and a computer-generated avalanche. The avalanche eventually smashes into miniatures of the communication center.

Director
Rob Cohen

Producer
Neal Moritz

Visual Effects Supervisor
Joel Hynek

Associate Visual Effects Supervisor
Matthew Butler

Visual Effects Producer
Kelly L'Estrange

Computer Graphics Supervisor
Sean Andrew Faden

Compositing Supervisor
Claas Henke

Character Animation Supervisor
Brad Parker

Digital Production Manager
Lisa K. Spence

CG Effects Animation Leads
John Michael Courte
Rob Stauffer

Avalanche Technical Lead
Alan Kapler

CG Effects Animators
Matt Cordner
Robert Andrew
David Frick
Cody Harrington
Eric Horton
Alla Kalachnikova
Dean Junji Sadamune
Ryo Sakaguchi
Alfred Urrutia

Character Animation Lead
Dave Hodgins

Character Technical Lead
Darren Hendler

Character Animators
Dan Fowler
Piotr Karwas

CG Modeling & Lighting Lead
Melanie Okamura

CG Modeling & Lighting
Spencer Alexander
Rob Baldwin
Kevin Jackson
Errol Lanier
Martin Meunier
Leigh Rens
Vernon R. Wilbert Jr.
Aaron Vest

3D Integration Lead
Swen Gillberg

3D Integration Artists
Jay Banks
Michael Condro
Martin Clark
Scott Edelstein
Chris Gallagher
Steve Hansen
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YEAH! THE MOVIE

2:26

"Ogre" is our real-time rendition of Spellcraft Studio's animation "Yeah! The Movie" (www.yeahthemovie.de). Using the vertex and fragment shaders, we were able to match their animation and shading, with time left over for adaptive subdivision and shadows! All so our friendly ogre could dance with his little friends.

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