An Invitation to Interactive Art
Itsuo Sakane

Welcome once again to the world of interactive art!

There are not a few of you who will be even more impressed by the new media artwork at our third biennale in Ogaki since 1995. There are a lot of you who are new to this rare group of artworks, who feel nervous when first touching an artwork and moving your arms and legs, or who may be surprised by its changing sounds and images. Be assured; many of you will eventually get a knack for dialogue with the works. Many of you here for the first time will surely be enticed by the participation games starting all around you, and after watching them, you'll be eager to try them out yourself.

As its name implies, interactive art is artwork that from the beginning conveys meaning and enjoyment when you participate in it. If you only stand still the whole time, nothing happens. The artists themselves demand on an active participation, and to that end have prepared a program waiting your engagement. Many works offer you a stage on which you are the actor of the moment — the artists have anticipated for your responses, and concentrate on creating works that will evolve as cooperative efforts.

Certainly some people will doubt whether this game-like aspect in a dialogue model of art can really be called "art." Some who desire the silence suited to the solitary internal dialogue while quietly standing face-to-face with the artwork, as in exhibits of former genres of art such as painting or sculpture, will be dissatisfied.

However, interactive art has a history of its own. This is not only a history of art, but of a new genre born from a close relationship with the development of science and technology as human intellectual activities.

Moreover, there are already many works of interactive art in development. Among these, from works that are metaphorical and difficult to understand in one viewing, to those that have their appeal in the discovery of their symbolic, introspective images, the extraordinary variety of works should surprise us.

But this time, in order for more people to grasp the trends and future possibilities of interactive art, we changed our design slightly and have deliberately arranged easily understood artworks that anyone can feel an affinity for. In them we have hinted at the technology behind the scenes that have the interaction between audience members and the works, and we have given attention to enabling you to read between the lines the ideas and performing devices. With this we hope the next generation of young media artists will be inspired even part of the way, and that you might contemplate the possibilities hereafter for this field. But first, visit the exhibition, and with an open mind begin a dialogue of your own with this group of artworks.

The History of Interactive Art

As mentioned at our previous two exhibitions, in the history of art dating back to the Middle Ages several instances in each country can be found for the broader applications of interactive art, where artists themselves invited the active participation of the audience, and where viewers experienced the pleasure of solving a riddle. Trompe l'oeil and hidden pictures are one example. But apart from this trend, contemporary interactive art can trace its origins to the time when computers came into practical use in the 1960's. A kind of game-like program developed when computer users freely chose a strategy for achieving a goal they set for themselves. In time, things progressed so that instead of computer input with keyboards, mouses or touch-pens, mediation was accomplished by devices such as sensors reacting to the touch or body movements of humans. We can say that today's interactive art made its appearance when it become feasible for audience members themselves to take an active role in the world of the artwork through direct use of their bodies.

Artists who are responsive to curiosity as well as to the spirit and the leading technology of this unusual era will not likely overlook this potential. In the latter half of the 1960's, the decade when computers were invented, we were already at a point where specimens of interactive art were beginning to be produced in countries all over the world.

Positioning Interactive Art in the Contemporary Arts

From the viewpoint of contemporary art, one could think interactive art is not part of the Art World, but a separate act of creation produced from the broader workings of human knowledge. Certainly computer science and other technologies do fulfill an important role in this art concept. However, if we think about the merging of art and science, the unity of art and technology as a large theme within humanity's creative activity since the dawn of this century. It is fair to say that this merging is one of the new aesthetic endeavors that opens up the future and reconstruct identity of art. On the other hand, there is also a kind of resistance communicated toward art itself up to now, which over the course of its long history became too authoritarian and tended to forget the subjective participation and interpretation of those on the viewer's side. New York art critic Regina Cornwell asserts that an element of the historical resistance movement against this authoritarian art is communicated in the spirit of today's interactive art. From our current perspective, says Cornwell, the new art movements of Marcel Duchamp earlier this century and the happening art of the 50's were pioneers of a kind for interactive art. The same kind of consciousness toward participation has not only flourished in the field of art, but also in the sciences since the latter half of the 60's. Instead of the exhibit methods of art museums and science museums up to now, where historical memorabilia was shown to the public from a one-sided system of values, exhibits that privilege the audience's viewpoint are more and more appearing. New participatory museums responding to the opinion that we must rediscover the meaning of natural phenomena are multiplying all over the world. In any event, we have come to believe it is necessary to rethink the historical background against which the two domains of art and science have mutually influenced each other since the latter half of this century.

The Genealogy and Development of Contemporary Interactive Art

With such a history in its background, from the late 70's to the mid-80's various interactive art pioneers appeared from wide range of backgrounds and places and began showing their new work. For example in the late 60's, American mathematician and artist Myron Krueger, who continues to do such works, exhibited an interactive exhibit of a maze set on the floor that changed with the participants' movements. Since the late 70's students and researchers at CAVS and at the Architecture Machine Group, predecessor of Media Lab, in MIT, have produced unique ideas for interfaces and thus accelerated the advance of this interactive art. For example, Michael Naimark and Scott Fisher are two such pioneers in Interactive Art, as they

participated in the development of *Aspen Moviemap Project* during their student days. Scott Fisher also developed a dance project in which a dancer's movements are automatically recreated as graphic images on the screen, and he later became a founder of a Virtual Environmental Workstation at NASA. And since the late 80's artists from a variety of genres of past art forms have been venturing into this world one after the other, producing interactive artworks of unsurpassed artistic merit.

Jeffrey Shaw, director of the Institute for Visual Media at the ZKM (Center for Art and Media Technology) in Karlsruhe, Germany, is one person who earned the world's praise as he presented work after work of high artistic value full of metaphor and symbolism. Artists who up to now had been creating paintings, sculptures, music, and works of photography, design, dance and video gradually entered the world of interactive art. Also on the increase and setting standards for the world are those artists who exhibited their work at world-renowned professional launching pads such as the computer graphics conference of SIGGRAPH in USA, and ARS ELECTRONICA held in Linz, Austria and known for events featuring the fusion of art and technology. Accomplished artists have increasingly opened exhibitions all over the globe and ushered in a new golden age of interactive art.

Activating the World's Media Culture Centers

Behind these new trends in media art, construction of media culture centers as stages for creating and exhibiting new works is on the increase in Europe and the United States. The aforementioned Ars Electronica, begun in Linz, Austria in the late 70's, set up a new prize category in interactive art in 1990, and inaugurated a new building, the Ars Electronica Center in September 1996. The following year 1997 in October, ZKM, which began its creative activity in the late 80's, was officially inaugurated as a large-scale media culture center. In Japan, NTT's ICC museum in Nishi-Shinjuku, Tokyo debuted a step ahead of ZKM in response to this current in April 1997. The Center for Advanced Visual Studies (CAVS), initiated in 1967 at MIT as a center whose aim was the integration of art and technology, stagnated in the early 90's when it failed to ride the current of the media era. Last year however, Professor Stephen Benton of the Media Lab set out to remake CAVS into a new arts center for the media age.

We here at IAMAS too, in following up on the pioneering trail of global media culture since the 1970's, have formed cooperative ties with the world's artists and centers, which is in a sense laying the new foundation for our current school. We have set up a system for inviting artists in residence from around the world, and initiated of the World Forum for Media and Culture biennale. The biennale centered around the installations of interactive art, contemplating the current tide and future outlook of global culture.

The Unique Character of Interactive Art

The unique character of interactive art, even if we take only one work as an example, is that it's progress depends on the artist's or the audience's attitude toward participation. This is a crucial difference from previous artworks. With art of the past, a work's value was frozen at the moment the artist completed it, thereafter becoming an object of preservation and speculation. In contrast to this tendency, interactive art possesses qualities whereby the artist or cooperating authors upgrade the program version or reform the interface design; in this way a new work is reborn when participation by viewers deepens its substance, provides for accumulation of messages, and makes the work grow as if it were a living thing. Closely resembling to the concentrated efforts of humans to raise landscape gardens or build historical cities, the work is a living thing nurtured as it absorbs the spirit of an era. We can say that a feature of this creative field is that just as there is value in the first original work created by an artist, there is much anticipation for the growth process of the work.

Distinctive Features of This Year's Exhibition

Among those of you who experienced the previous two Interaction exhibitions, there may be some who notice the atmosphere of this year's exhibition is somewhat different.

Some of you might feel that compared to past exhibitions, the scale of the installations is somewhat smaller and the formalities of their display facilitate intimacy. One reason for this is that the lineup of exhibiting artists has become younger. Of course, there are veteran artists such as IAMAS Artists in Residence Christa Sommerer, Laurent Mignonneau and Tamás Waliczky, who have won numerous prizes in global media art competitions. And the Italian group Studio Azzurro, who since the early 80's have been actively showing their video installation works on the international circuit, will present a large-scale work for this year's exhibition. However, of the group as a whole, graduate students as well as graduate school instructors and researchers account for the majority, and most of the students are in their twenties. Although at first glance their works seem small in scale, but they are distinguished in that very unique and attractive ideas can be seen in their interface schemes for inviting audience members to dialogue with the works. Rather than an attitude toward including a profound message or metaphorical quality in their concepts or content, one feels foremost the effort made toward the enjoyment of a homey interface design. Of all the exhibits, one in particular that can drive home a profound message in its images is that of Studio Azzurro, whose work is modeled after a concept inspired by the 15th century paintings of Italian Paolo Uccello. If anything, its attitude is close to that of contemporary art and video artists to date, and with knowledge of the artwork's concept and cultural background, it is a work rich in metaphor whose true meaning becomes clear.

Thus one can sense quite a difference between this year's exhibits on display, from those inclined toward an interest in interface design to those showing an adherence to concept and content. There are also differences as to what degree the viewer herself as a principal actor can participate in the final images of the work. *Screen Play* and other such exhibits, in turning the images of audience members into the leading actors, are conscious of the pleasure viewers take from having a dialogue. On the other hand, Studio Azzurro uses in their works an interface with a hidden microphone that responds to audience members' voices or clapping. These sounds, however, serve as triggers for video images recorded in a laser disc, and therefore audience members do not participate in constructing images. Rather, during the course of their extensive activity producing video installation exhibits, Studio Azzurro has cultivated a vast store of excellent image creations, results of the staging of their exhibits. With this store of images they aim to capture the audience's appreciation for the profound meaning of video itself. Thus, the difference between whether an aim is revealed through the uniqueness of the interface design or through the artistic quality of a work that encourages mediation, leaves us anticipating the broad directions interactive art will take in times to come. The differences come from the various artists' distinctive attitudes toward or experiences with their creations and from their different cultural backgrounds, and result in the individuality of every work. Knowing there is such varied potential in interactive art, we have

come to understand that it is impossible to summarize it in just a few words. As we comprehend interface technology, uniqueness of design, and the variety of message content, we have also come to believe in the need to keep a close watch on future potential for development. These interface technologies are full of possibilities for going beyond the domain of the arts and bringing their effectiveness to fields of practical application in society. Interface design is not only for the sake of artistic expression — it has the potential for useful service in human living environments of the future. We encourage you to not limit this year's works on display to a narrow interpretation of artistic value, but to look at them from a broad cultural and social perspective.

Another distinguishing feature of this year's exhibiting artists is that they are all concentrated in a small number of educational and research facilities: MIT's Media Lab, NYU's ITP, and the Interval Research Corporation of Palo Alto, for example. Actually, this is not a coincidence, but a conscious decision. As mentioned earlier, Media Lab at MIT from the mid-70's to the present played an instrumental role in developing interface technology. ITP is a graduate school of media design that was founded twenty years ago in New York University's Tisch School of the Arts, and its curriculum in interface design has an established reputation. Interval Research Corporation has many talented media artists engaged in research, and is a place where much energy is invested in the development of unique practical applications for interface design. These three institutions maintain close ties, and promote programs for the mutual exchange of research personnel and interns. The designated course in computer-related design at RCA (Royal College of Art) in London is also famous in this kind of interface design research, and also promotes the exchange of artists and personnel with Interval Research Corporation. It is clear that for the purpose of future creative developments in interactive art and interface design, cooperation between the world's research and educational institutions is becoming critical. We believe this exhibition is one of the means through which we can think about what the environment for development and education toward such a future will need. We hope also that in contemplating Japan's media culture of the future, discussion and collaboration with this year's artists will be an opportunity for generating new proposals and questions.

Introduction and Highlights of Exhibits on Display

Commentaries on the individual works by each artist are featured in this catalogue, but here we will introduce the highlights of each work in terms of an overview of the whole exhibit. First of all, this year you may notice that quite a few works make use of computers behind the scene; the effect is to forge more intimate connection with people's everyday emotions, their sense of play, and even historical nostalgia. This might symbolize the circumstances for the continuing maturity of contemporary media art. The following is a look at a group of works that share similar concepts among those on display.

In Pursuit of Nostalgia and Recollection

Several of the exhibits strive to provoke in us recollection and nostalgia. First is Christa Sommerer and Laurent Mignonneau's work *Haze Express*, displayed in a large, wide room immediately to the right as you enter the exhibition hall. In a structure much like a car of the bullet train, there are three pairs of seats, and visitors sit in seats facing each other with a window in between. When you sit down and look out the window, fondly remembered towns and landscapes pass by in the deep mist, evoking a nostalgia for journey. If then you touch the window, these images take on fantastical changes. At the time of this writing, the image interfaces were also in the midst of completion, so I myself am giving free play to my imagination in trying to picture these fantasies.

Focus by Tamás Waliczky is also a work whose theme is tied to reminiscence. On display is a kind of souvenir photograph synthesized from collected photographs of fondly remembered friends from his six-year sojourn at ZKM in Karlsruhe. Here again, the focus in the photographs is blurred as if surrounded by mist. However, when the viewer touches the small panel before him, that area comes into focus on the screen. Moreover, as if adjusting the depth of focus with the lens of a camera, when the viewer slowly shifts the moving scale to change the depth, the area in focus then expands. Tamás developed the design for this new interface after his arrival at IAMAS as an Artist in Residence; the tactile sensation of the lever seems to make the nostalgia in such photographic images even more keen. The work has progressed a step further since he presented it at the Ars Electronica exhibition in September of last year, as he has added quite a few more photographs.

Stream of Consciousness, created by two young graduate students, David Small and Tom White, at MIT's Media Lab, is also a work that triggers memories somewhere in our imagination of words. In a pond made of stones, which at first glance seems to be out of place in an exhibition hall, letters flow from the upper part of the pond, floating down like the leaves of a tree . . . . When you casually pick out words and read them, associations develop, and a variety of remembered meanings begin circulating in your consciousness. When the tactile interface covered with a soft pad is touched, a cursor of light appears in the water; when the letters are touched by this light, they twirl around like tree leaves, and one after the other change into new words with seemingly similar meanings. From memories of meanings made up of letters, there comes an imaginative space where people recall their own experiences and think of the future. . . . It is a fresh new work that skillfully draws out the psychological effectiveness of these words.

An image that similarly arouses nostalgia (in the Japanese most of all) is Elaine Brechin's *Windgrass*, a marvelous exhibit of hundreds of incense-like sticks standing together in a charming vessels set within the exhibition hall. Tiny incandescent lights at their tips make us think of the glow of incense, and when you blow on them the glow drifts back and forth, evoking the atmosphere of Japan's *Obon* season when the spirits of ancestors are called forth. In this refreshing work, the grass growing at the bottom of the containers also waves in the wind with the swaying vessel. In spite of yourself you feel for a moment immersed in a dialogue with nature.

Games with Light and Shadows

Simulation functions in which images identical to the actual object are produced have been around for a long time in computer operations. The field of virtual reality that makes use of this is expanding, and there are a number of exhibits displaying this feature. Two works displaying light and shadows in particular stand out. Motoshi Chikamori and Kyoko Kunoh's *KAGE–KAGE* for example, is a further development of their award-winning exhibit *KAGE* presented in previous multimedia events. This version is set up between two vertical walls. The shadows that seem to be produced by light are in fact not real shadows; every time a viewer touches a cone, a completely unexpected, mysterious virtual shadow leaps out in this charming work. It beckons children and adults alike to take part in this playfully innocent shadow-play.

The other work that encourage mutual action between light and humans is *Boundary Functions* by Scott-Sona Snibbe. It is a strange experience that a beam of

light acting as a boundary line appears at the feet of two people and separates them as they stand in the space. When the number of people increases to three or four, then three or four boundary lines insert themselves between the people. This work experimenting with an interface design that utilizes cognitive systems makes us think about the psychological sense of space that tends to separate one person from another even among friends, and the subtle psychological influences that give rise to physical distances.

Works Inspiring the Artistic Impulse to Sketch and Draw

Emily Weil's *Screen Play* is part of a developing software work. The portrait form on a screen is reflected through a series of permutations — chalk drawing, the outline of the silhouette, moving picture of the participant — in response to the movement of the participant, instantly creating a "moving portrait" on a screen. Emily is currently adapting this program to make it more directly and tangibly interactive to change the sequence. We are eagerly looking forward to witnessing the finished product at this exhibition.

VideoPaint Easel by Daniel Rozin, one of Emily's colleagues at ITP, similarly pursues a sketch-type image as it invites audience participation. When you stand facing the canvas and stroke it with a brush made of optical fibers, you are able to paint in any number of images selected from among those captured by the numerous video cameras set up in the exhibition hall. Through a kind of synthesizing stroke, you can produce one extraordinary painting after another, whether portraits or landscapes. In this exhibit you can take pleasure in designing as you dip the brush in the canister of virtual ingredients to select the images allocated each camera, as if choosing a component for a painting.

The Balancing Maze Game

This maze game, *MetaField Maze*, is a collaborative work based on a new plan elaborated by an MIT Media Lab graduate student William Keays and Ronald MacNeil, a principal researcher at the previously mentioned CAVS. In the traditional maze game that is currently on the market, you attempt to get the ball into the final hole by tilting the direction of the board it sits on; this idea reappears in the same form in this computerized version, but now utilizes advanced artificial intelligence. The maze is clearly projected on the floor and the rolling ball is visible, and when the visitor stands on the maze, the entire floor surface truly seems to tilt toward the position where the person shifts his weight, and the ball begins rolling toward the lowest area. As you shift your position and control the tilting of the whole maze, you force the ball into the maze's exit. Even though the actual floor does not move at all, you have the sensation that it is tilting, an optical illusion in this work featuring the experience of virtual reality. With high-speed calculations performed by a computer, this intelligent exhibit moves the ball by computing the center of gravity from the position of the participant; two students are taking on the challenge of developing the interface program for this work.

Metaphors for Classical Painting

The last work exhibited is the large-scale *Frammenti di una Battaglia* by Studio Azzurro. The water, sand, mound of fallen leaves, and deep bamboo grove filling four rectangular holes dug into the floor appear quite still, and remain so unless visitors intrudes sonically upon them. When someone approaches one of the holes and shouts or claps her hands she will be surprised, for suddenly people's bodies leap out of the water or sand, or pile of leaves and engaged in fierce struggle, bodies twining arms and legs around each other while slapping and tumbling around in a violent acrobatic display. A variety of battle scenes soon emerge from each place, whose intensity is quite a novel in this type of media art. Actually, this is a portion of a large-scale work shown in the exhibition *Totale della Battaglia* held in 1996 within the remains of an ancient castle in Lucca, Italy; here we are introducing only four parts of a series of dozens that comprise the entire work. The Studio Azzurro team devised and prepared this theme as an installation exhibit from a hint found in *The Battle of San Romano* by 15th century Italian painter Paolo Uccello. *The Battle of San Romano* portrays a battle scene with knights, horses, and weapons standing together. With the active movements of the whole momentarily restrained, this composition has the psychological effect of caricature at a glance. The city of Lucca, which commissioned the work, is an ancient castle town surrounded by high walls that used to prevent enemies from entering in. It is said that no enemies ever advanced within, so the town was always peaceful. The Studio Azzurro had been fans of Uccello's works since their student days, and was inspired by the effects of his painting and the unique atmosphere of the castle remains. They decided to experiment with transforming the painting's freeze-frame movements into smooth movements through audience participation and showing it as a video exhibit. At the same time their work can also be thought of as a satirizing the idea of war and peace. In this creation many actors are utilized to create scenes of naked bodies in battle, but in this we can deduce that, from the birth of humanity to today's high-tech wars, it is not so much that the so-called warrior instinct is the source of conflict, or that in the end the quality of the machines themselves constitute war. Rather, people's judgments, made in the twinkling of an eye, and the speed of their responses tell us something about the substance of war that is captured metaphorically by this work. At the same time, we can also appreciate the beautiful ballet of intertwining limbs. The collage-like video work from the Studio Azzurro creation, projected on the walls of gigantic column in the deepest recesses of the Lucca exhibition hall, is also projected at the far end of this room. The portraits of bodies and horses in motion, created by them and rendered as a collage from Paolo Uccello's original (in the Uffizzi Gallery), is also itself a work of images. Uniquely, this installation, with its references to Italian history, culture and particularly art history, represents a new approach, one in which we can sense the extraordinary potential for nuance and complexity in multimedia art.

As you can see by the above-mentioned works on display, contemporary interactive art has entered the domain of our everyday consciousness, and is beginning to develop new methods of expression related to fundamental issues of humanity, such as time, space, language, and even behavioral psychology. From one view point it resembles a game, but beyond this level it begins to connect with spiritual culture of the future; at the same time, the interface design and programming technology that support development will relate both directly and indirectly to tomorrow's manufacturing and economic activity. Current opinion in the information industry, if anything, tends toward pragmatism and shortsighted commercialism; but as we try to figure out how humanity is to cultivate this symbiotic environment, it is now more crucial than ever to aim for a mature sensibility and wisdom when it comes to education and culture in the 21st century. We will be pleased if you experience this year's events by considering, in part, its deeper significance, its spirit of investigation and anticipation of a future media culture.

Christa Sommerer / Laurent Mignonneau

Christa Sommerer and Laurent Mignonneau are Artist-in-Residence at the IAMAS International Academy of Media Arts and Sciences Gifu, Japan and Researchers and Artistic Directors at the ATR Media Integration and Communications Research Lab in Kyoto, Japan where they direct research on interactive computer systems that combine topics like artificial life, complexity, communication, interface design and new forms of interactivity. Their interactive computer installations have been called "epoch making" (Toshiharu Itoh) as they pioneer the use of "natural interfaces" and create a new language of interactivity using artificial life and evolutionary image processes.

Permanent installations in collections:
Life Spacies at the NTT InterCommunication Center, Tokyo, Japan
Interactive Plant Growing at the ZKM Media Museum, Karlsruhe, Germany
Trans Plant at the Tokyo Metropolitan Museum of Photography, Tokyo, Japan
A-Volve at the NTT PLA-NET in Nagoya, Japan
Phototropy II at the Shiroishi Multimedia Art Center, Shiroishi, Japan
VERBARIUM at the Cartier Foundation, Paris, France

Haze Express

Haze Express is an interactive computer installation that develops the metaphor of traveling and watching landscapes passing by through the window of vehicles such as trains, cars and air planes. When looking at a landscape at high speed, one does not really know very much about this landscape, how it looks in details. The passing landscapes become mere images, accumulations of forms, shapes and colors, like a haze of impressions.

Haze Express is an interactive journey on a virtual train where the viewer can watch the passing images, stop them and look at their composition in more detail. Only when the viewer physically engages in interaction with the window of the train, can he influence the composition of these images in the landscape. The way he moves his hand on the train window surface will influence how the landscapes behind become composed: non-deterministic evolutionary image composition linked to interaction will always provide new and unique image elements that become part of the semi-realistic and semi-virtual trip through data landscapes.

Haze Express consists of 3 compartments with one window and two seats each: up to 6 visitors can interact simultaneously. Sitting in one of the *Haze Express*'s comfortable chairs the visitor can look out of the window while touching it with his hand. When sliding his hand to the left or right or up and down the window surface, the images on the window will slide in the same direction, uncovering always new and abstract landscapes composed of lights, reflections, haze and shadows. The behavior of these elements depends on the frequency, speed and direction of the viewer's hands movements; through evolutionary image composition they ultimately decide the composition of the upcoming landscapes. The moving images can also be simply stopped by ceasing the hands movement while remaining with the hand on the window surface. When no interaction takes place over an extended period of time, the patterns and forms will slowly disappear, as the landscape is directly linked to the viewer's presence and interaction.


Christa and Laurent

クリスタ・ソムラー／ロラン・ミニョノー

クリスタ・ソムラーとロラン・ミニョノーは、IAMASの客員芸術家であり、京都のATR知能映像通信研究所での研究員でもある。人工生命や複雑系、通信やインターフェイス・デザイン、インタラクティビティの新しい形態などをテーマにコンピュータ・システムについての研究を進めている。彼らのインタラクティブなコンピュータ・インスタレーションは、「エポック・メイキング」(伊藤俊治)なもので、「自然なインターフェイス」の使用を創始し、人工生命と進化を基にした画像処理を使った、「対話」のための新しい言語を作り出している。

常設展示作品としては、「ライフ・スペイシーズ」NTTインターコミュニケーション・センター(東京)／「成長する植物」ZKMメディア・ミュージアム、カールスルーエ(ドイツ)／「トランス・プラント」東京都写真美術館(東京)／「A-Volve」NTTプラネット(名古屋)／「フォトトロピーII」白石市情報センター(白石)／「VERBARIUM」カルチエ財団、パリ(フランス)などがある。

霧の特急列車

「霧の特急列車」は、列車や車、飛行機などの乗り物から、窓外をよぎる風景を見ながら展開する、旅のメタファーのインタラクティブなコンピュータ・インスタレーションである。高速で移動するとき、風景は詳しく確認できない。通り過ぎる風景は、ただ、かたちと輪郭と色が集積された画像となり、霧のような印象になってしまう。
この作品では仮想の列車によるインタラクティブな旅ができる。観客は流れゆく画像を眺め、その動きを止めて子細に見ることができる。列車の窓に対し観客が実際に働きかけたときにのみ、風景の中のイメージに影響を与えることができる。窓に触れた手をどのように動かすかによって、窓外の風景が変化する。きまぐれに展開していく画像は、観客の動きに反応して、次々に新しく、ユニークなイメージへと変容し、データが生み出す風景から半ば現実的で、半ば幻想的な旅が生み出されていく。
作品はそれぞれ1つの窓と2つの座席をもつ3つのコンパートメントからなり、同時に6人までの観客が体験することができる。「霧の特急列車」の座席にゆったりと座り、手で窓に触れながら、観客は窓外を見る。窓を左右や上下になぞると、窓の上の画像も同じ方向に動き、光や反射光や霧、影からできた、新しい抽象的な風景が刻々と生まれてくる。これらの画素のふるまいは、観客の手の動きの頻度や速さ、方向によって決まる。進化する画像生成システムによって、次に現れてくる風景の最終的な構成が決定される。手の動きを止めたまま窓に触れていると動画は静止する。一定時間窓に触れていないと、そのパターンとかたちはゆっくりと姿を消す。風景は見る者の存在とインタラクションに直接結びついているのである。

Haze Express
1999

Like our previous works, *Haze Express* aims for a new type of image generation, that uses genetic programming and evolutionary image processes linked to interaction to create a process-oriented artwork. It is no longer pre-fixed and pre-programmed by the artists, but instead created through interaction and non-deterministic and non-linear image processes.

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Space Design: Shiro Yamamoto

http://www.mic.atr.co.jp/~christa

「霧の特急列車」は以前の作品と同様、新しいタイプの画像生成を目指している。それは観客の動作と結びついた、遺伝プログラミングと進化による画像処理を用いた作品である。その画像はもはやアーティストによってあらかじめ決定され、プログラム化されたものではなく、観客のインタラクションによって、非決定的で、非線形な（決まった順序では起こらない）画像を生み出す作品である。

この作品は、IAMAS（岐阜県立国際情報科学芸術アカデミー）において開発された。
協力：天龍工業株式会社（岐阜）、JR東海
インターフェイス制作：ロラン・ミニョノー
スペースデザイン：山元史朗

Tamás Waliczky

Tamás Waliczky, born in 1959, works as a painter, film cartoonist and computer-animation filmmaker. He started out by creating cartoons films and comics (1968–74), later taught himself drawing and painting, and began working with computers in 1983. He was artist-in-residence at the ZKM, Institute for Visual Media in 1992, and subsequently a member of the Institute's research staff (1993–97) before taking up a guest professorship at the Hochschule der Bildenden Künste Saar, Saarbrüchken in 1997. IAMAS in Gifu, Japan, has chosen Waliczky as artist-in-residence in 1998–99.

Focus

Focus consist of two elements: The first is a large projected image; the second is an interface that allows the viewer to interact with the image.

Several people standing on a street, with houses on the left and right, are projected on to a large screen. Part of the interface set up the user can see a smaller copy of this composition. At first, the whole composition is blurry, like a photograph that is out of focus. To adjust the focus, the user can simply touch any part of the interface image with his or her finger. The part of the image that has been selected will then be sharpen reflexively in the projection. Once a subject has been picked out and focused on, the user can then display a large scaled photography of this subject simply by pushing the button positioned on the right side of the interface. Likewise, if the viewer wishes to return to the main composition, s/he only has to push the button on the left side of the interface. Picking out a person or a house on the screen interactively can be seen as a perceptual metaphor for the way you go about isolating and attending to an individual or an object from a mass of individuals and objects.

The second level of interacting with *Focus* is different from the process outlined above. By choosing different aperture values on the interface (F 1.4, 2.8, 4, and so on), the viewer broadens the depth of field of the image, causing neighbouring layers to become sharper. Therefore, instead of separating elements out of a mass, the user can – by simply changing the aperture reading – discover connections between the different parts of the composition.

The people and houses in the composition are positioned in such a way that the friends, colleagues, or relatives of one family are the closest to each other in depth. Therefore, by increasing the depth of field the user can find out all the possible connections between the first person selected and his or her neighbours in the composition. Most of the time, changes in aperture values lead to corresponding changes on the large scale independent photos as well. Thus, by focusing on one person in a composition and pushing the right button at the lowest aperture level (F 1.4) , the user will usually see a large scaled photograph of that person. By changing the aperture level to F 2.8, the large scaled photograph of the one individual will be transformed into a photograph with two or three persons; the original individual and his or her relatives or friends. Again, with the aperture at F 11, the user may end up with a photograph of a group of a dozen people.

This system works a bit like a computer game: The aim of the user is to find the proper combinations of the focal position and the aperture value that will show a richer and richer variety of compositions.

Tamás Waliczky

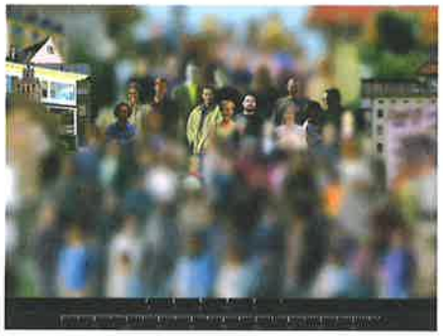
タマシュ・ヴァリツキー

タマシュ・ヴァリツキーは、1959年に生まれ、画家、アニメーションフィルム、コンピュータ・アニメーション映画製作者として活動。アニメーションと漫画の制作(1968-74年)から始め、その後デッサンと絵画を独学で学び、1983年よりコンピュータによる制作を始める。1992年ZKMの視覚メディア研究所のアーティスト・イン・レジデンスとなり、引き続いて研究スタッフとなる(1993-97年)。1997年にはザールブリュッケンのザール芸術学校における客員教授。IAMAS(岐阜県立国際情報科学芸術アカデミー)の1998-99年のアーティスト・イン・レジデンスに選ばれる。ヴァリツキーの作品は、パリのジョルジュ・ポンピドゥー・センター、ボンのオッペンハイマー・コレクション、東京のビデオギャラリーSCAN等のコレクションに加えられている。

フォーカス

「フォーカス」は大きく分けて2つの部分から成る。1つは大きく投映される映像で、もう1つは観客が映像を操作するインターフェイス。スクリーンには写真が投映されていて、立ち並ぶ人々が、またその左右両側の街路には家が見える。この写真の小さいものがインターフェイスとして使われている。全体ははじめ焦点の合っていない写真のようにぼやけている。観客が小さな写真のどこかを指で触れると、焦点(フォーカス)を変えることができ、投影された映像上の、触れた部分にすぐ焦点が合う。ある人物や家に焦点を合わせるのは、多数の中からの誰か、あるいは何かを選び出すことの比喩でもある。作品の中の人々はすべて、さまざまな国の私の友人や知人、そして親戚である。ある要素に焦点があっているとき、手元の右側にあるボタンを押すと、別の大きな写真が投映され、左側のボタンを押すともとの写真に戻る。

「フォーカス」における2つめのインタラクションは、上に述べられたものとは逆に機能する。多数の中からどれかを選び出すのではなく、「絞り」を変えることで、作品の中の部分の間の関係性を発見することができる。手元のタッチパネルで絞り値を大きくしていくと(F1.4、2.8、4など)、映像の被写界深度が拡がり、隣接する領域までがシャープになる。作品の中で人々と家、その友人や知人、または同じ家系の親戚は、互いに最も近い焦点深度におかれている。したがって、被写界深度を増すことによって観客は、作品の中で最初に選んだ人物と、その近くにいる人々との間の関係を発見することができる。また、絞り値を変えると、独立した大きな写真も違うものに変わることもある。



Focus
1998–1999

作品の中のある人物に焦点を合わせ、絞りをF1.4にして右側のボタンを押すと、その人1人が写った大きな写真が現われる。例えばそこで絞りをF2.8に変えると、大きな写真は、最初の人物がその親類あるいは友人と、2、3人で写った写真に変わることがある。また絞り値をF11にすると、最初に選んだ人物が知人たちに囲まれている十数人のグループ写真が現われるかもしれない。このシステムはこうしてコンピュータゲームのように機能し、観客は焦点距離と絞り値を適当に組み合わせることで、次々に別の写真を見ていくことができる。

コンセプト：タマシュ・ヴァリツキー、アンナ・セペシ
プログラミング：タマシュ・ヴァリツキー、ヴォルフガング・ムンヒ
インターフェイス制作：山元史朗

「フォーカス」は、国際的なアーティスト10人をフィーチャーし、ヨーロッパの状況とその政治的、経済的、文化的動向に関する重要な問いかけを行なった一連の展覧会の一環として、「PHOTO 98：イギリス写真・電子イメージ年」により制作依嘱されたものを基にしている。

Concept: Tamás Waliczky, Anna Szepesi
Programming: Tamás Waliczky, Wolfgang Munch
Interface Development: Shiro Yamamoto

Focus was originally commissioned by "PHOTO 98: The UK Year of Photography and the Electronic Image" as part of a series of exhibitions featuring ten international artists and asking important questions about the nature of Europe and its changing political, economic and cultural identities.

David Small / Tom White

David Small recently completed a Ph.D. at the MIT Media Laboratory with a dissertation titled "Rethinking the Book". He began his studies of dynamic and 3D typography in three dimensional landscapes first as a student and then a colleague of Muriel Cooper, founder of the Visible Language Workshop. The design of complex information environments has led him to construct novel physical interfaces for manipulating virtual objects.

His work has appeared in "Scientific American", "Print", "Communication Arts", "the Atlantic Monthly", "ID magazine's 42nd Annual Design Review" and the book "Information Architects". He has designed interactive information environments for such companies as IBM, LEGO and Nike,Inc.

Tom White is a Ph.D. candidate at the MIT Media Laboratory, working in the Aesthetics and Computation group under Professor John Maeda. His work focuses on creating new ways of communicating with computational media, often through the design of new hardware devices. His master's thesis centered on anew family of interfaces known as Liquid Haptics, and the *Stream of Consciousness* uses a Liquid Haptic device as its way of allowing people to interact with the flowing words.

Stream of Consciousness

This interactive poetic garden is literally a fountain of words. Water flows briskly down a series of cascades into a glowing pool. A tangle of words projected on the surface of the pool float like leaves in a stream. Sitting on the edge of the pool — but without getting your hands wet — you can control the flow of words, blocking or stirring them up, causing them to grow and divide into new words that are eventually pulled into the drain, then pumped back to the head of the stream, only to tumble down again. The garden is one of the experiments underway in the Media Lab's Aesthetics and Computation group, under the direction of Professor John Maeda, working to sculpt computational media into new expressive forms.

Water enters at the back of the garden and cascades down a series of pools until it reaches a large square pool. This larger pool is lined with crushed white coral and here the water moves slowly until it spills out the back edge. Words appear to tumble down the rocks along with the water, calmly pull themselves through the shallow pool, and then magically reappear at the top of the stream along with the water. The words mimic the physical behavior of objects floating in a real fountain. The person sitting at the bench can interact with the words through a special hand interface letting her stop the word flow, push and pull words, and over time change the content of the words themselves.

The garden is built with an SGI O2 workstation, poplar, copper, river stone, a video camera, a bladder of soy sauce and bamboo. All software was custom written in C++ by Small & White. The research was sponsored in part by the Media Lab's Things That Think and News in the Future consortia.

David Small / Tom White

デビッド・スモール／トム・ホワイト

デビッド・スモールは、最近MITメディアラボで「書物再考」というタイトルの博士論文を完成した。3次元の風景の中の、ダイナミックな3Dのタイポグラフィーについての研究を、初めは学生として、後にミュリエル・クーパー（視覚言語ワークショップの創設者）との共同で開始。複雑な情報システム設計の中で、特に仮想のオブジェクトを操作するための新しい物理的なインターフェイスの構築に向かう。
スモールの作品は雑誌「サイエンティフィック・アメリカン」、「プリント」、「コミュニケーション・アート」、「アトランティック・マンスリー」、「IDマガジン第42回デザインレビュー」および「インフォメーション・アーキテクツ」ウルマン著、に掲載されている。また、IBMやLEGO、ナイキといった企業のためにインタラクティブな情報システムを設計している。

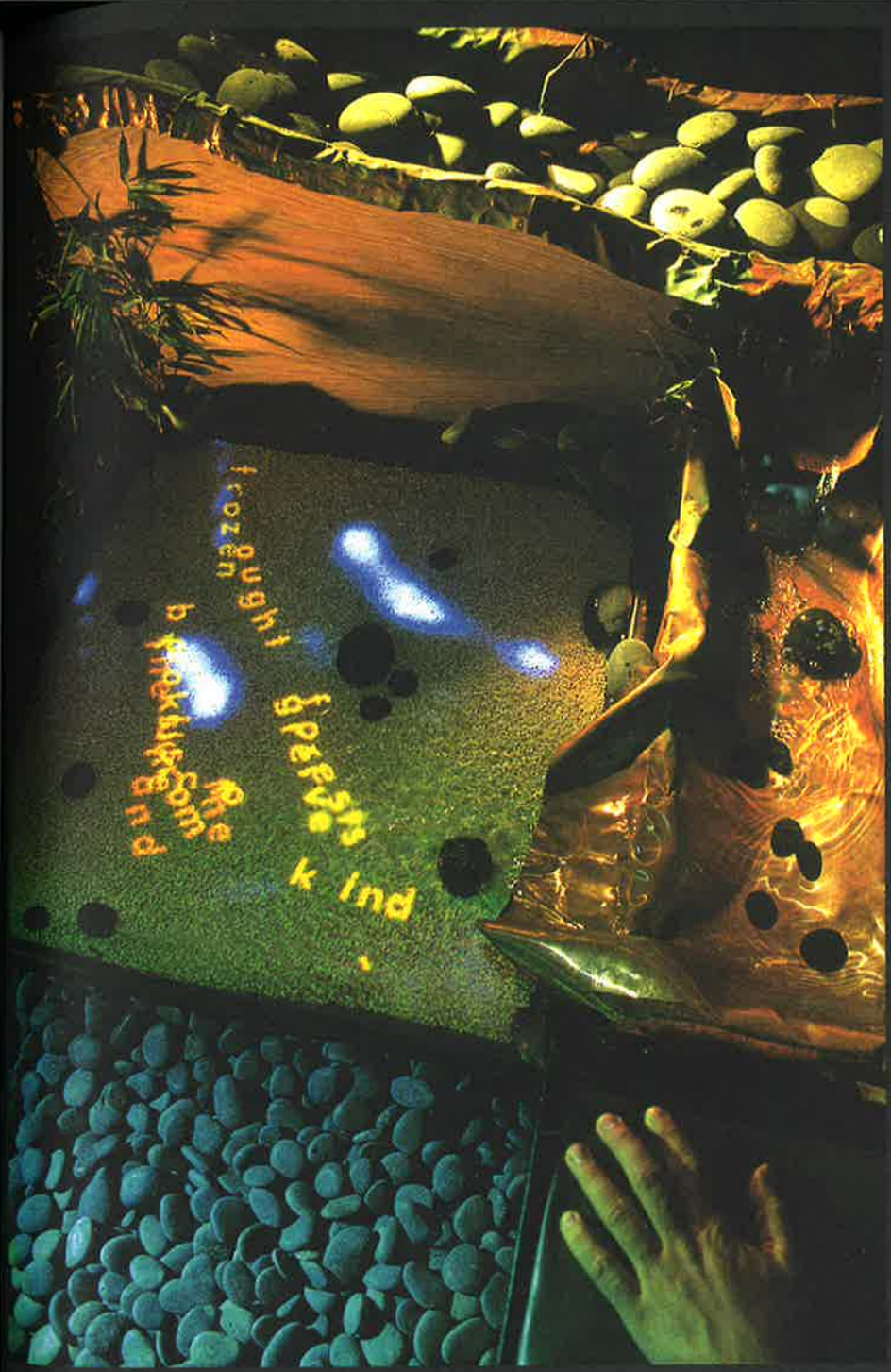
トム・ホワイトは、MITメディアラボのコンピュータ美学グループに属し、ジョン・前田教授の下で博士過程の研究を続行中。そのテーマは、コンピュータメディアを用いた新しいコミュニケーションを方法を作ることで、新しいハードウェアデバイスのデザインを伴うものが多い。修士論文は「液体の触覚」として知られる新たな一群のインターフェイスに着目したもの。「意識の流れ」はこの「液体の触覚」デバイスを使って、流れる単語と戯れることができる。

意識の流れ

この作品はインタラクティブな詩的な庭であり、文字通り単語の泉である。水は一連の段差を流れ落ち、池に流入する。池の表面には、流れに浮かぶ木の葉のように、投写された単語がもつれながら浮いている。水たまりのそばに座って—ただし水に手を入れることなく—せきとめたり、かきまぜたりして、単語の流れをコントロールすることができる。それは単語を長くのばして新しい単語に分割するが、ついには排水溝に吸い込まれ、再び汲み上げられて流れの始まりからもう一度流れ落ちる。この庭は、MITメディアラボのコンピュータ美学グループにおいて、ジョン・前田教授の指導の下で行われている、新しい表現力を持ったコンピュータメディアを形づくるための実験の1つである。
水は庭の後方から、一連の澱みを経て流れ落ち、最後に四角い池に達する。この大きな池は白いサンゴの砕片で縁取られていて、水はここでゆっくりと流れ、後方の縁からこぼれ落ちる。単語は水とともに岩の間を流れ落ち、浅い池を穏やかに通り抜け、再び水とともに流れの開始点に魔法のように現われる。単語は実際の泉の上に浮かんだ木の葉のように、物理的な振舞いを模倣したものである。観客はベンチに座って、特別なインターフェイスに手で触れて単語の流れを止めたり、押しやったり引き戻したり、そしてついには単語自体の内容を変えたりと、言葉と戯れる。

この庭はSGIのO_2ワークステーションと、ポプラ、銅、河川石、ビデオカメラ、醤油の入った袋、竹によって作られている。ソフトウェアはすべてスモールとホワイトによってC++で書かれている。この研究の一部は、メディアラボの「考えるもの」及び「未来のニュース」コンソーシアムの助成を受けている。

stream@media.mit.edu
http://acg.media.mit.edu/projects/stream/
David Small: http://www.media.mit.edu/~dsmall
Tom White: http://tom.www.media.mit.edu/



Stream of Consciousness
1998

Motoshi Chikamori + Kyoko Kunoh

Motoshi Chikamori
1971 Born in Tokyo
1998 MA in the plastic arts curriculum, design program of the art research department of the graduate school at Tsukuba University.
Currently enrolled at Karlsruhe University of the plastic arts.

Kyoko Kunoh
1972 Born in Tokyo
1997 Completed the curriculum in Policy and Media Research at the graduate school of Keio University.
Currently employed at Keio University Art Center.

Chikamori and Kunoh began their collaboration in 1996. In 1997 they exhibited their work at Ars Electronica. They received the Media Arts Festival Grand Prize by the Agency for Cultural Affairs in 1998, and that same year presented their work at exhibitions in Japan and overseas.

KAGE–KAGE

In Japanese, the word "kagÉ" is used to mean both the "shadows" projected by objects, and as a word that conveys "existence." For example, "it has neither form nor shadow" is an expression for something that is nonexistent, and since ancient times it has been believed that ghosts, as non-real phenomena, have no shadow. This is because shadows have always served as proof that a thing existed. However, in the former exhibit *KAGE*, this theory does not apply. When the cone-shaped objets casting triangular shadows on the floor surface are touched, they change colors, turn into shapes such as fish or airplanes, and move about. In actuality, these shadows are all false shadows created by computer graphics. Moreover, when these phenomena are occurring, the audience members' own shadows are constantly being projected on the floor by the light of a projector shining down from above. When they discover that these computer graphic, false shadows and their own real shadows are on the same plane, they rediscover their own shadow and existence.

It may be because the exhibit *KAGE* originally derived from the concept of children playing with shadows, but seeing visitors amusing themselves with this installation calls to mind young children absorbed in play. We noticed that here was another new "sense of reality" in action. It is a peculiar reality of "communal place," produced at the point where a variety of visitors commit to the work at the same time in what can only be called a kind of "collaborative sense of reality." In *KAGE–KAGE* we expand this "communal place" in a three-dimensional space, and attempt the pluralistic fusion of a diversity of felt realities.

Chikamori + Kunoh

近森 基＋久納鏡子

近森 基
1971年、東京都生まれ。
1998年、筑波大学大学院修士課程芸術研究科デザイン専攻総合造形分野修了。
現在、カールスルーエ造形大学に在籍。

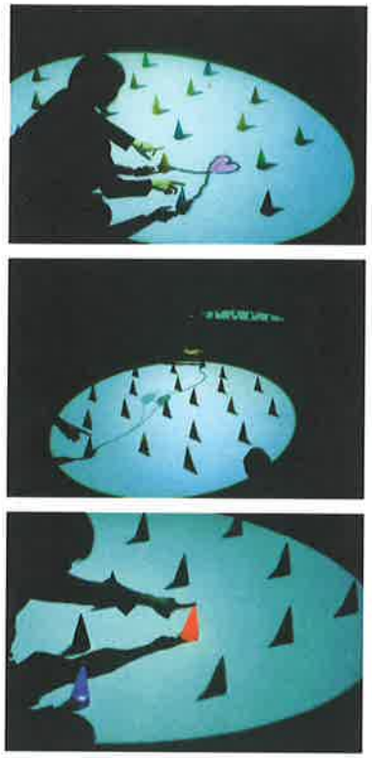
久納鏡子
1972年、東京都生まれ。
1997年、慶應義塾大学大学院政策・メディア研究科修了。
現在、慶應義塾大学アートセンターに勤務。

1996年より共同制作を始める。97年アルス・エレクトロニカに出展、98年には文化庁メディア芸術祭部門大賞受賞。同年、その他国内外での展覧会で発表。

KAGE–KAGE

日本語の「かげ」という言葉は、物体の投影という意味での「影」を示すと共に、「存在」を意味する単語として用いられる。例えば、全く存在しえないということを「影も形もない」と表現したり、非現実的な現象である幽霊は影を持たないと昔から信じられている。それは、影が常に、物体がそこに在ることの証しになっているからである。しかしながら、前作「KAGE」の中では、その命題は適用されない。床面に投影された三角形の影達は、主であるはずの円錐形のオブジェに手を触れた途端、多彩に変色したり、魚や飛行機や様々な形態に姿を変え、動き出す。実は、この影達は、全てCGによって作り出された偽物の影である。そして、これらの現象が起こっているとき、観客はいつもプロジェクターの光で上から照射され、観客自身の影も床面に投影されるのだ。CGによる偽物の影と自分自身の本物の影が同時に同じ平面上にあることを発見したとき、彼は自分の影と存在を再認識するのである。

前作「KAGE」は、そもそも子供の影絵遊びから着想を得た作品ゆえか、観客がインスタレーションに興ずる様子は、遊び場で夢中になる幼い子供達を連想させる。我々は、ここでもう一つ新たな「現実感」の作用に気が付いた。「共同現実感」とでも言うべき、複数の観客が同時に作品にコミットした際生じる、「共有された場」特有のリアリティーである。「KAGE–KAGE」では、この「共有された場」を立体的な空間に拡張し、様々な現実感の多元的融合を試みた。

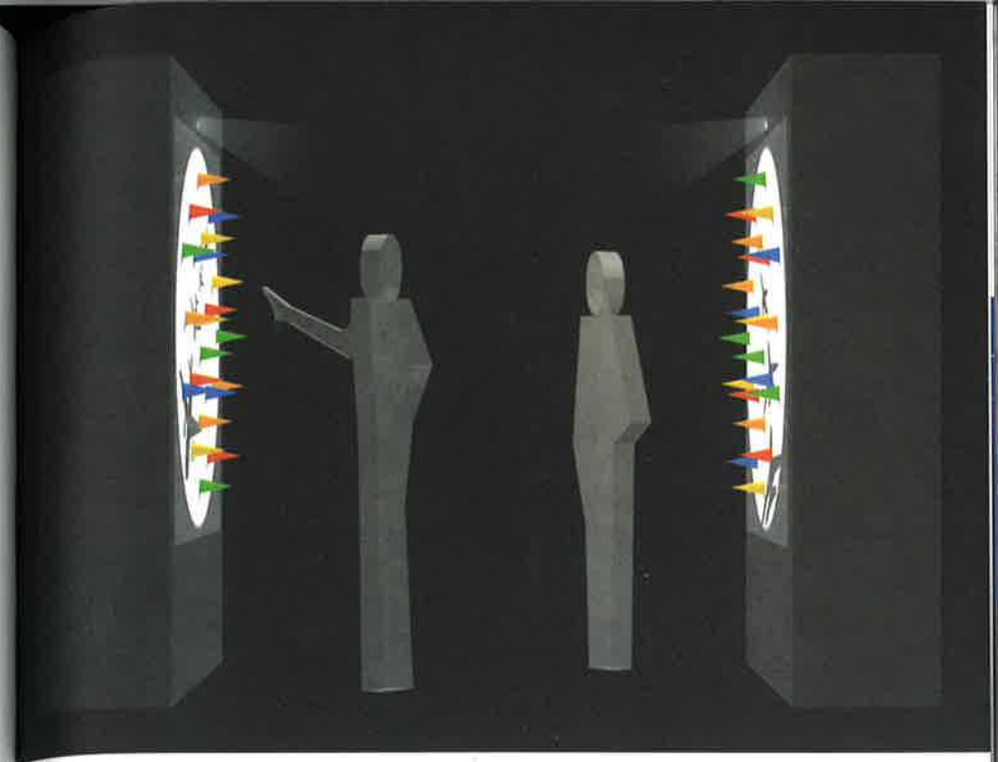


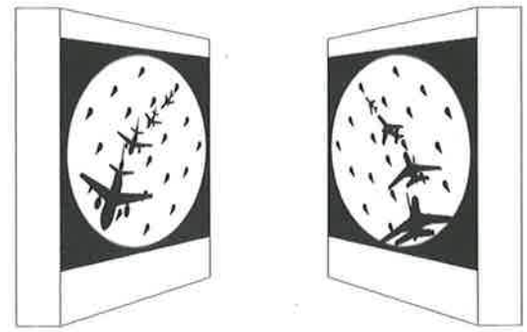
KAGE（参考作品）
1997–1998

There are two walls facing parallel to each other. When the objets set up inside are touched by visitors, the triangular shadows between the two walls display a variety of changes. The silhouette of a fish jumps out of the wall facing you, and you think it dives into the rear wall leaving ripples and the sound of splashing water. The shadow of a person waving and saying "Hello" from the rear wall receives a "Hello" in return from the shadow of a person appearing on the front wall. In addition to the virtual shadows possessing no substance, the "space" contained between the walls imparts a strange reality in its seemingly nonexistent solidity.

Enter the gaps between "kagÉ" and "kagÉ" and see if your own existence is confirmed there.

Interface Development: Ryota Kuwakubo





KAGE-KAGE
1999

平行に向き合って立てられた二枚の壁がある。その内側に取り付けられたいくつもの円錐形オブジェに観客が触れると、二つの壁の間で、三角形の影が様々な変化を見せる。正面の壁から飛び出した魚のシルエットが後方の壁の中に波紋と水音を残して飛び込んだかと思えば、後側の壁から「ハロー」と言って手を振る人影に、前面の壁にも現れた人影が「ハロー」と返す。実体を持たないヴァーチュアルの影に加えて、壁と壁に挟まれた「間」が、存在しないはずの物体に不思議なリアリティーを与えるのである。

ともあれ、「かげ」と「かげ」の隙間に入り込んで、そこに在るあなた自身の「存在」を確かめてみてもらいたい。

インターフェイス制作：クワクボ リョウタ

Scott-Sona Snibbe

Scott Snibbe's work emphasizes human expression through movement and gesture. His output includes interactive artwork, animated films and commercial and research software. His commercial projects have included tools for interactive 3D animation; motion control and image processing; data visualization; simulation and computational physics for interaction and animation and Computer Vision.
Snibbe has worked at the Brown University Computer Graphics Group as a postgraduate researcher, at the Rhode Island School of Design as an animation instructor, and at Adobe Systems as a Computer Scientist. Currently he is employed as a researcher at Interval Research in Palo Alto, California where his work focuses on Haptics (the field of engaging touch through digital computers), Digital Video and Interactive Graphics.
Snibbe's commercial work has fed and informed his personal artwork and films. Well known among his interactive projects are the *Motion Phone*, a networked experiment in abstract visual communication; and *Boundary Functions*, a body-centric visualization of personal space. His animated films focus on nonverbal storytelling through movement and subtle significances. Both his interactive work and animated films have been featured internationally in such venues as SIGGRAPH, Ars Electronica, the Stuttgart, Hiroshima and Ottawa Animation Festivals, the San Francisco and Seattle film festivals.

Boundary Functions

Boundary Functions is an exploration of personal space and the relationship of the individual to society. The piece is realized as a set of lines projected from overhead onto the floor which divide each person in the gallery from one another. With one person in the gallery there is absolutely no response. When two are present, there is a single line drawn halfway between them segmenting the room into two regions. As each person moves, this line dynamically changes, maintaining an even distance between the two. With more than two people, the floor becomes divided into cellular regions, each with the mathematical quality that all space within the region is closer to the person inside than any other.

The regions which surround each person are mathematically referred to as Voronoi diagrams or Dirichlet tessellations. These diagrams are widely used in diverse fields, spontaneously occurring at all scales of nature.

By projecting the diagram, these invisible relationships between individuals and the space between them are made visible and dynamic. The intangible notion of personal space and the line that always exists between you and another becomes concrete. The installation is non-functioning with one person, as a physical relation to others must be present. In this way the piece is a reversal of the often lonely self-reflection of virtual reality — here we are given a virtual space which can only exist with more than one person.

Scott-Sona Snibbe

スコット＝ソーナ・スニッブ

スコット＝ソーナ・スニッブは、人の動きや身振りによる表現を中心とした作品を制作している。インタラクティブな作品の他にもアニメーション・フィルムや商用・研究用のソフトウェアなども製作し、参加型3Dアニメーション、モーション・コントロールや画像処理、データの視覚化、相互作用や運動に関するシミュレーションや数理物理学、マシンビジョンなどの商業的プロジェクトを手がけている。
ブラウン大学のコンピュータグラフィックス・グループで大学院研究員、ロードアイランド造形大学でアニメーション講師、またアドビシステムズ社ではコンピュータ・サイエンティストとして勤め、現在はカリフォルニア、パロアルトのインターバル・リサーチ社で触覚学（コンピュータを用いた触覚に関する領域）やデジタル・ビデオ、インタラクティブ・グラフィックスなどを研究している。
スニッブ個人の作品、映画はこうした商業的な仕事が基になっている。インタラクティブな作品としては、抽象的な画像によるコミュニケーションのネットワーク上での実験である「モーション・フォン」、自身を中心とした個人的な空間を視覚化する「境界線」などの作品がよく知られている。アニメーション・フィルムは、動きや微妙な表意による、台詞のない物語を中心としたものである。これらの作品は、シーグラフ（米）やアルス・エレクトロニカ（オーストリア）などの展覧会、シュツットガルト（独）、広島、オタワ（加）でのアニメーション映画祭、サンフランシスコ（米）、シアトル（米）の映画祭などにおいて国際的に紹介されている。

境界線

「境界線」は、個の空間、個と社会の関係を探究する作品である。この作品では、頭上から床面に向けて投写される線が、おのおのの観客を分かつ境界線となる。作品の空間に1人で入っても何も起こらないが、2人で入るとその中央に1本の線が現われ、空間を2つに分ける。2人が動いても2人からの距離が同じになるように線も動いていく。さらにフロアに人が入ると空間は線によって細胞状に分割され、それぞれの観客を分ける。細胞状の領域のどの部分も、外側の人物より内側にいる人物に近いという数学的性質がある。
観客を囲むこの空間は、数学ではボロノイ図形あるいはディリクレ分割とよばれ、さまざまな分野で使われているほか、自然界においてもあらゆる場所で見られるものである。
投写される図形は、個々と、その間にある空間との見えない関係をダイナミックに視覚化し、個人的な空間、そして他者との間につねに存在する境界線という実体のない観念を具体化する。1人ではなにも起こらないこの作品は、他者との物理的関係が前提とされ、自身の孤独な反映であるようなバーチャルリアリティではなく、複数の人が参加することによって初めて成り立つバーチャルスペースなのである。

The title of the piece, *Boundary Functions*, refers to Theodore Kaczynski 1967 Ph. D. thesis at the University of Michigan. Better known as the Unabomber, Kaczynski is a pathological example of the conflict between the individual and society — the conflict and compromise of engaging in society versus solitude and individuality uncompromised by the thoughts or presence of others. The thesis itself is an example of the implicit antisocial quality of some scientific discourse, mired in language and symbols impenetrable to the vast majority of society. In this installation, a mathematical abstraction is made instantly knowable by dynamic visual representation.

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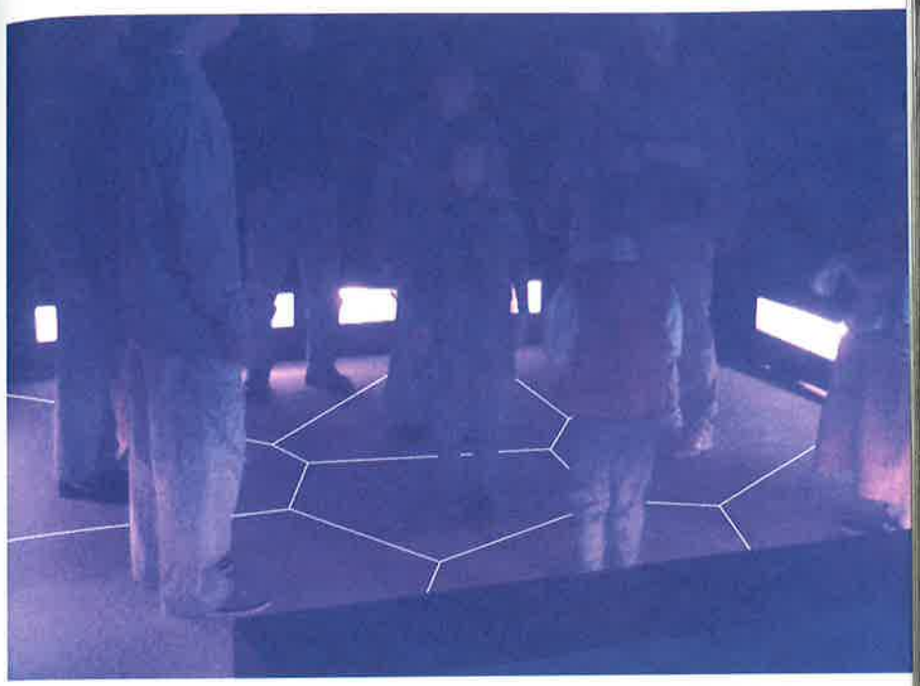


Boundary Functions
1998

この作品のタイトルは、シオドア・カジンスキーのミシガン大学での1967年の博士論文にちなんだものである。「ユナボマー」として知られる爆破犯カジンスキーは、個と社会との葛藤—社会の中で生きる上での葛藤と妥協、他者の思考や存在に妥協できない個性や個人性—を表わすひとつの病的な例である。論文そのものは、一般の人々には不可解な言葉や図式で埋められている通常の科学論文の持つ反社会性を示す一例にすぎない。これとは逆に、このインスタレーションでは、ダイナミックな視覚的表現によって、数学的な抽象性を理解しやすいものにした。

Elaine Brechin

Elaine Brechin received an MA in Computer Related Design in 1996 from the Royal College of Art (RCA), in London.

Self-Storage, her first major exhibition, was collaboration with Brian Eno and Laurie Anderson which took place in the spring of 1995. The interactive installation, Aura, created by Brechin and two RCA colleagues, was shown within this exhibition. Since then Brechin has continued to explore the tension between the real and the virtual by building a wide variety of interactive objects and installations.

Brechin's later work has been shown at the San Francisco Museum of Modern Art, SIGGRAPH 98 and as part of the inaugural exhibition for the San Jose Tech Museum of Innovation. She has also been awarded a New Media Best of Category Award from I.D. Magazine and had her work covered by National Public Radio.

Currently a Member of the Research Staff at Interval Research Corporation, Brechin brings an artistic and design sensibility to explorations of various forms of physical computing.

Windgrass

When I began using computers in 1994 I was struck by how the richness of manipulating materials such as clay, metal, wood and paint with physical tools had been lost in the realm of computational technology. The narrow bandwidth provided by a keyboard, a mouse and a relatively low-resolution screen leads us away from the physical world and reduces our sensory palette to a mere shadow of the one with which we operate in our daily lives. We are left with a connection between the creator, the material, the tools and the audience that is often impersonal, distant and impoverished.

The major trajectory of my work has been to address the physical/virtual divide by bringing more intimate and emotional physicality into play between people and their machines.

Windgrass is an interactive installation which explores the contrast between human–computer and human–human or human–nature interactions. The piece embodies this contrast in its combination of artificial computation and natural subtlety. It expands the standard palette of materials used in the human–computer interaction, and allows users to employ senses other than sight and sound to drive the interaction. Using breath as the main input to the piece transforms what is often a cold and imprecise relationship into a very intimate and subtle one.

Small incandescent lights flicker, inviting the visitor to come closer to investigate their source. The gentle rocking of *Windgrass* implies the object is alive and requires human touch.

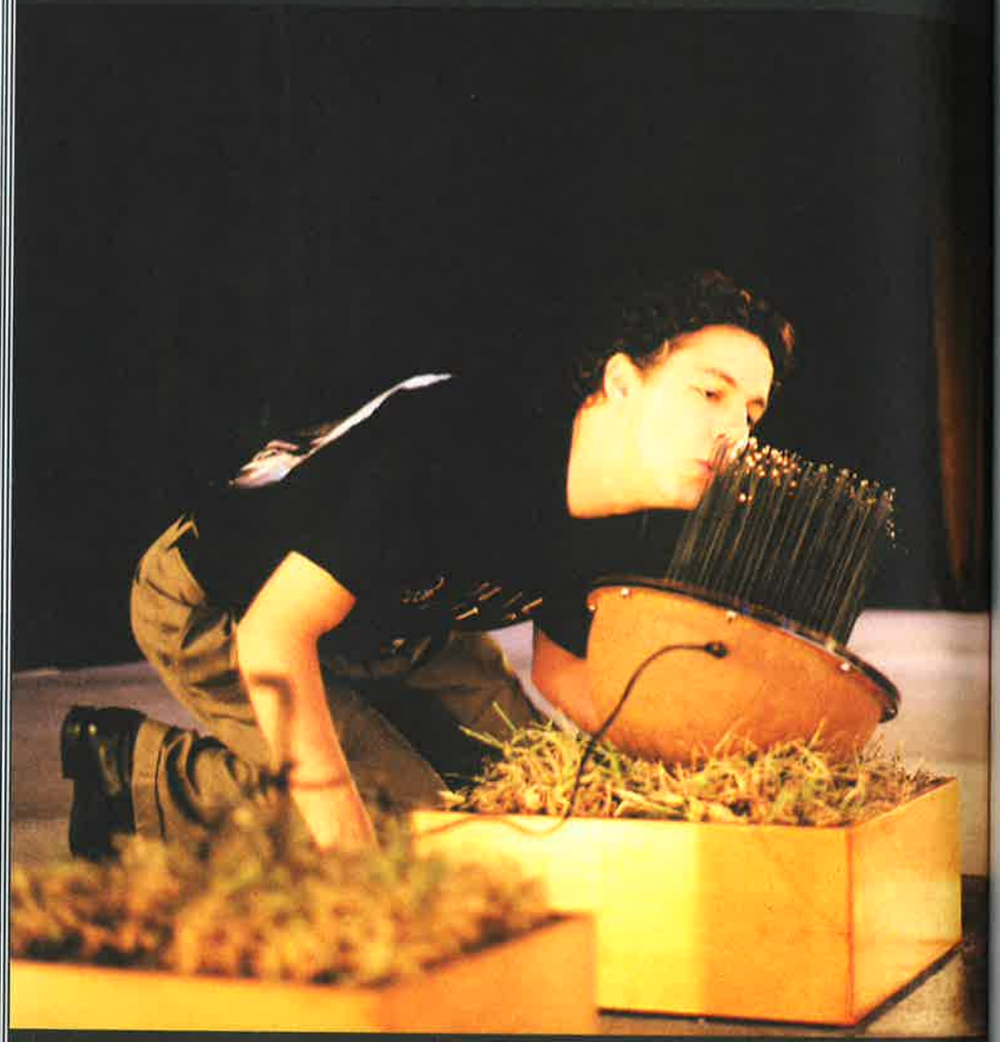
Elaine Brechin

イレーヌ・ブレチン

イレーヌ・ブレチンは1996年、コンピュータ・デザインによる修士号を英国王立芸術大学（RCA）において取得。
1995年春に行われたブレチンの最初の大きな展覧会「Self-Storage」は、ブライアン・イーノとローリー・アンダーソンとのコラボレーションによるものであった。ブレチンとRCAの2人の仲間によって作られたインタラクティブ・インスタレーション「Aura」は、この展覧会で発表された。ブレチンはそれ以後も多様なインタラクティブなオブジェやインスタレーションを制作し、リアルとヴァーチャルとの緊張に満ちた関係を探究し続けている。
ブレチンの最近の作品は、サンフランシスコ近代美術館、シーグラフ98において、さらにイノベーション技術博物館（サンノゼ）の開館記念展でも展示されている。また「I.D.」誌のニューメディア・ベスト・オブ・カテゴリー賞を受賞したほか、国営公共ラジオでも作品がとりあげられている。
現在はインターバル・リサーチ社の研究スタッフの一員として、アートおよびデザインの感性をもって、さまざまな、フィジカル・コンピューティング（物理的な接触を伴うコンピュータ技術）の探究を行なっている。

風にそよぐ草

1994年にコンピュータを使い始めた時、通常の道具を使って、粘土や金属、木材、絵の具といった素材を操ることの豊かさが、コンピュータ技術の領域でいかに失われているかということにショックを受けた。キーボードやマウス、そして低解像度のモニタから得られるデータ量は少なく、われわれを物質世界から遠ざけ、日常生活での感性のパレットに較べて、その影のようなものに変質させてしまう。創作者と、素材や道具、そして観客との間で、多くの場合非人間的で、疎遠で、貧しい関係をわれわれは押しつけられているのである。
私のこれまでの作品は、人と機械との対話の中に、より親密で情動的な身体性を持ち込んで、物質性と仮想性との境界を見せることを目指してきた。
「風にそよぐ草」は人とコンピュータ、人と人、あるいは人と自然の間の関係での差異を探るインタラクティブ・インスタレーションである。作品では、作為的なコンピュータの使用と、自然な繊細さとを結び付けることによって、この差異を具体化する。人とコンピュータの間のインタラクションで通常使われるような素材のパレットを拡張し、視覚と聴覚以外の感覚を使ったインタラクションが行なえるようになっている。息をふきかけて作品に接することで、多くの場合冷たく、わかりにくい関係が、非常に親密で微妙な関係になる。
小さな電球が明滅しているため、観客はその光源がなんだろうと近づいてくる。優しく揺れ動く「風にそよぐ草」は、そのオブジェが生きており、人間的な手触りを求めていることを暗示する。

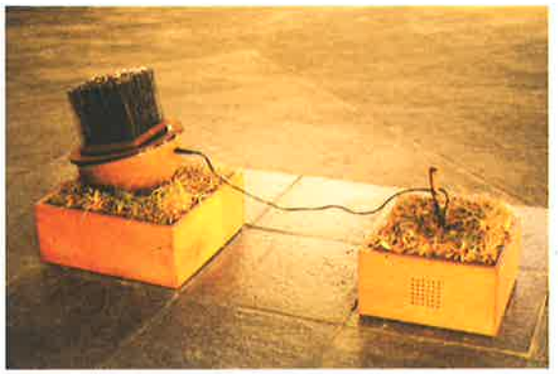


Windgrass
1998

Sensors nestled within the grid of lights collect data as the visitor lightly breathes across the surface of lights. Three separate processors interpret the sensor data, providing instructions for creating and displaying an undulating visual pattern on the grid of 484 tiny incandescent lights.

By forcing people to concentrate on controlling their breathing, *Windgrass* reminds them of their own physical being. Those who take the time to modulate their breath are well rewarded.

Concept and Direction: Elaine Brechin
Engineering: John Ananny, Ed Carryer, Jesse Dorogusker, Lee Felsenstein, Rob Shaw, REM Design, Stan Axelrod



観客が光の表面に軽く息を吹きかけると、格子状に置かれた光源と共に埋め込まれたセンサーがそのデータを収集する。3つの別々のプロセッサがこのセンサーの集めたデータを解釈し、484個からなる微小な格子状に並んだ電球の上に、うねるような視覚的パターンを表示するよう指示を出す。
「風にそよぐ草」は、観客に対して呼吸のコントロールに注意を向けさせることによって、観客自身の身体的な存在を思い起こさせる。呼吸の調節に時間をかける人たちは十分に酬われるのである。

コンセプト、ディレクション：イレーヌ・プレチン
エンジニアリング：ジョン・アナニー、エド・キャリアー、ジェシー・ドロウスカー、リー・フェルセンシュタイン、ロブ・ショウ、REMデザイン、スタン・アクセルロッド

Emily Weil

Emily Weil is currently an Interval Research Fellow at the Interactive Telecommunications Program at New York University. She has also worked for the Interval Research Company in Palo Alto, California, where she was involved in conceiving, designing and programming new products in digital media. Emily received a B.A. in Philosophy at Brown University and graduated from the Interactive Telecommunications Program in 1997. Emily has taught computer skills to teenagers, web design to adults at the New School for Social Research in New York City, and skiing to three-year-olds. When she is not working on a computer, she enjoys shaping clay into pots.

Screen Play

My work involves new computer interfaces designed specifically for creative expression. The computer interface was initially created for calculation. The keyboard and mouse were built for precision. By contrast, in *Screen Play* I use a video camera as a spontaneous and gestural input device.

Screen Play extracts information from a captured video stream to create markings on the screen. The software filters out the edge of anything moving in front of the camera and uses this edge as input. Making a picture with multiple input points feels very different from the precision of a cursor's single point.

There are five different phases of *Screen Play*. First, the captured video frame leaves a trail as it glides across the screen, shrinking and expanding with each directional change. Then, motion leaves an impression like a charcoal sketch. In the remaining three phases,movement in front of the camera spreads a geometric pattern across the screen — which feels like full-body finger painting. Each phase is an experiment in creative computation. The images that appear on the screen merge the analogue world into the digital realm. The work as a whole attempts to use the computer as a tool to express more of us: not just our calculating selves, but our emotional and aesthetic selves as well.

After all, to perceive beauty is to be human. When I think something is beautiful, I feel it. It's a visceral reaction that reflects who I am, where I am, and my view of the world. Although the experience may result from a subtle combination of factors, the feeling itself seems simple.

Because we've created machines that compute better than we ever could, it's hard to remember that to calculate is also human. We naturally learn to count. It is a rational and universal way of organizing and understanding. Our success in designing computers that extend our ability to calculate has had a huge impact on our world. Increasingly, the reality we accept is one that can be represented by numbers.

But to what extent can computers enhance our aesthetic abilities? Can they enable us to make beauty even half as well as they let us crunch numbers? These are the sorts of questions that have led to the exploration you see in *Screen Play*.

Emily Weil

エミリー・ウェイル

エミリー・ウェイルはブラウン大学で哲学を学んだ後、1997年にニューヨーク大学(NYU)のインタラクティブ・テレコミュニケーションズ・プログラム(ITP)を卒業。在学中、パロアルトのインターバル・リサーチ社でインターン奨学研究員として、デジタルメディアの新しい製品の構想、設計、プログラミングに携わった。卒業後、現在インターバル・リサーチ社の研究員として、NYUのITPで研究に従事している。彼女は10代の少年少女にコンピュータ技術を、ニューヨーク市のニュースクール・フォー・ソーシャル・リサーチで成人向けにホームページデザインを、そして3歳の子供達にスキーを教えてきた。コンピュータに向かっていない時は、陶芸を楽しんでいる。

セルフポートレート

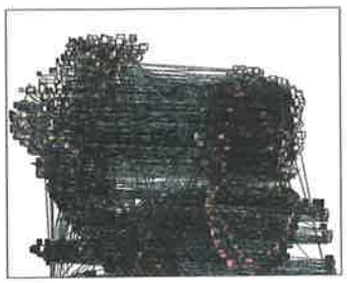
私の作品は、創造的な表現を行なうために特別にデザインされた、新しいコンピュータ・インターフェイスを使っている。コンピュータ・インターフェイスは、もともとは計算のために作られ、キーボードとマウスは正確さのために作られたものである。これと対照的に、新作「セルフポートレート」では、観客の身振りをとらえる自然な入力装置としてビデオカメラを用いている。

「セルフポートレート」は、ビデオカメラの映像から情報を引き出してスクリーン上にパターンを作り出す。プログラムはカメラの前で動くすべてのものの境界だけを検出し、この輪郭を入力として使う。多数の入力点から絵を作り出すため、カーソルの一つの点による明瞭さと比べると、非常に違った印象を与える。

「セルフポートレート」では5つの異なるプログラムを体験できる。まず取り込まれたカメラの映像がスクリーン上を動いて、方向が変わるたびに延びたり縮んだりしながら軌跡を残すもの。次に、動きが木炭によるスケッチのような印象を残すもの。残りの3つの状態は、カメラの前での動きによって、スクリーンを横切る幾何学的なパターンが展開されるが、それは全身によるフィンガー・ペインティングのようでもある。これらはコンピュータのクリエイティブな使い方への実験であり、スクリーンに現われるイメージは、アナログの世界をデジタルの領域と融合する。この作品はコンピュータを、我々の計算機能の側面だけでなく、情動的、審美的な側面まで、今まで以上に人間を表現するツールとする試みである。

美を認識するというのは極めて人間的なこと。私が何かを美しいと思う時にそれを感じるもので、それは私が誰で、どこにいるのかということや、私の世界の見方を反映するような本能的な反応である。経験はいろんな要因の微妙な組合せの結果生じるものだとしても、感じること自体は単純なことのように思われる。

私たちは、いままで可能だった以上の計算能力をもつマシンを作りだしたが、計算することもまた人間的なことだというのは、つい忘れがち。私たちは自然に数えることを学ぶ。それは分類し、理解するための合理的で普遍的な方法である。計算能力を拡張するコンピュータの設計に成功したことは、この世界に大きなインパクトを与えてくれた。私たちが受け入れる現実は、ますます数で表わされうるものになってゆく。
だがコンピュータは、私たちの審美的な能力をどれほど拡張することができるだろうか。人間に与えた計算能力の、その半分も美しさを作り出すことができるだろうか。こうした疑問が、あなたが体験する、「セルフポートレート」へとみちびいたのである。



Screen Play
1999

Daniel Rozin

Daniel Rozin is currently a researcher and faculty member at the Interactive Telecommunications Program at New York University, where he holds a fellowship from Interval Research Corp. Mr. Rozin received a master's degree from the Interactive Telecommunications Program at New York University in 1996 and a bachelor's degree in industrial design from the Bezalel Academy of Arts and Design Jerusalem in 1987. Prior to joining NYU, Mr. Rozin was chief designer and head of the design department for Scitex Corporation and an independent consultant in the areas of industrial design and user interaction design. Clients include Scitex, Iris Graphics, Leaf Systems, SDP, Interval Research, NYU and USA Networks. Products that Mr. Rozin designed have received numerous awards including the Rothchild prize, Israel's highest industry prize, and Sybold Report's 1991 Product of the Year.
Mr. Rozin was born in Jerusalem Israel in 1961 and since 1994 lives in New York with his wife Tamar.

VideoPaint Easel

The *VideoPaint Easel* looks like a large painting easel with a blank canvas stretched on a frame mounted to it. The painter uses a small paintbrush in a same manner a painter would. Instead of solid colors the brush applies live video from cameras positioned nearby. Each new stroke of the brush brings a new coat of "current video" to the canvas. The painter can select between a few live video sources by dipping the paintbrush into a few paint cans that are mounted on the easel. The computer that runs the easel software is hidden in the background and there is no computer screen in sight.

The content of apiece painted with the easel is not set. However the placement of the video sources does imply a set of expanding circles around the painter. The first circle is the closest. It is a camera pointed at the artist allowing him/her to portray himself or any objects near by. The second circle is a video camera pointing at the surrounding environment such as the room. The third circle is a live feed from TV or a camera pointed out the window. Using these three inputs the artist can create a picture that reflects a certain moment in time at a certain location and state of mind.

No one starts from a blank canvas each piece builds on the work of previous artists. This is something we are used to in the real world but seldom see in the digital world.

The canvas is a tool that composites content. The artist does not have to create all the material from scratch and some content is supplied, however the freedom within that content is great and allows for personal expression.

The Easel has no user interface in the conventional computer way. All aspects of it perform, as one would expect, the canvas displays the work, the paintbrush applies the paint, and the paint cans select the colors. By eliminating any uncertainty regarding the operation of the tool, the painters are free to concentrate on the painting itself, while the computer adds its calculation power seamlessly. Since the easel requires no "drawing talent" to create a rich and interesting piece, most people are not scared from using it, and are awarded by the richness of the result.

Daniel Rozin

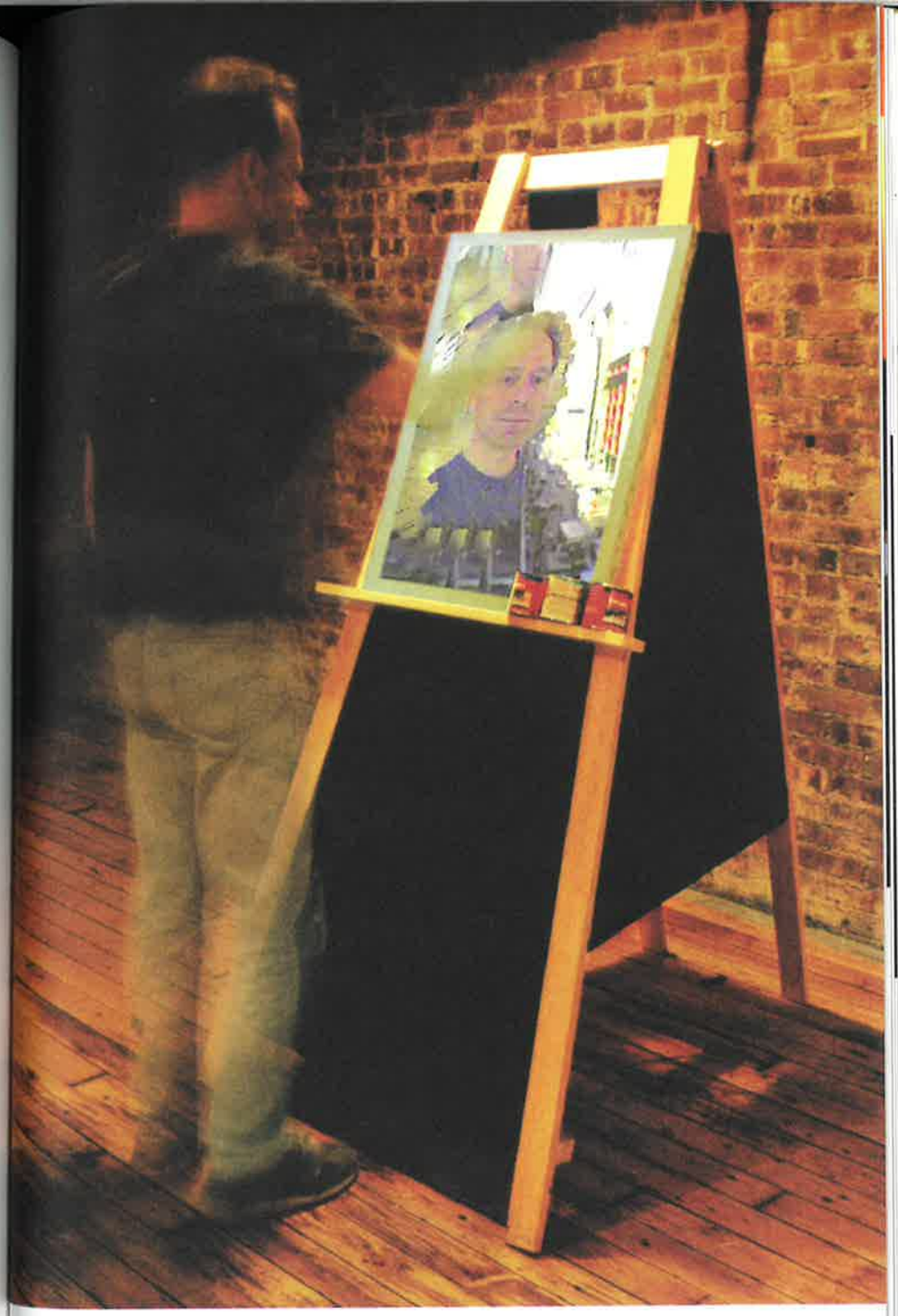
ダニエル・ローズィン

ダニエル・ローズィンは現在ニューヨーク大学のインタラクティブ・テレコミュニケーション・プログラム（ITP）の研究員および教員であり、インターバル・リサーチ社から奨学金を受けている。1987年にエルサレム・ベザレル芸術大学にて工業デザインの学士号を、1996年にITPにて修士号を取得。ニューヨーク大学に勤める前には、サイテックス社のデザイン部門のチーフを務め、工業デザインおよびユーザーインタラクション・デザインなどの分野におけるフリーのコンサルタントでもあった。サイテックス社、アイリス・グラフィックス社、リーフ・システムズ社、サイテックス・デジタル・プリンティング社、インターバル・リサーチ社、ニューヨーク大学、USAネットワーク社などをクライアントとしていた。ローズィンのデザインによる製品は、工業製品に与えられる、イスラエルでもっとも栄誉あるロスチャイルド賞や、シーボルト・レポート1991年度最優秀プロダクト賞をはじめ、多くの賞を受けている。
ローズィンは1961年イスラエルのエルサレムに生まれ、1994年より妻タマーと共にニューヨークに在住。

マジック・キャンバスの肖像

「マジック・キャンバスの肖像」は、みた目には、まだ何も描かれていないキャンバスを置いた大きなイーゼルである。画家が描くように小さな絵筆を用いるが、絵筆が塗るのは絵の具ではなく、近くに置かれたカメラからのビデオ映像である。ひと筆ごとに「その時カメラが撮影している映像」が塗られていく。イーゼルに取り付けられたいくつかの「絵の具缶」に筆を浸すことで、ビデオ映像を選ぶこともできる。このプログラムを走らせているコンピュータは隠れていて、モニターもない。
キャンバスに描かれる内容は、あらかじめ定められたものではない。しかしビデオ素材をキャンバスに置いていくうちに、あなたを中心とする少しずつ大きくなる「環」（カメラの撮影範囲）が感じられるようになる。1つめの「環」は最も近く、自分に向けられていて、あなた自身の姿や、すぐそばのものを撮影する。2つめは部屋の中などの周囲の様子、そして3つめはテレビ放送、または窓の外に向けられた映像である。この3つの映像から、ある瞬間の、ある場所、あなたの心を反映した絵を描くことができる。
何も描かれていないキャンバスから描き始めるのではなく、前の人の描いた絵の上に重ねて描いていく。これは現実世界では当り前だが、コンピュータの世界ではあまり見られないことである。
キャンバスは素材を合成する道具となる。すべての素材を最初から作り出す必要はなく、すでに用意されている。だがその素材の自由度は大きく、その人なりの表現をすることができる。

VideoPaint Easel
1998



この作品にはいわゆるコンピュータ的なインターフェイスはない。絵の具の缶で色を選び、筆で絵の具を塗り、キャンバスに作品を描く。操作に迷うということがなく、絵を描くことに集中でき、コンピュータは陰で計算を行なっている。この作品はすぐれた絵を描くための「絵の才能」を必要とせず、誰でも気楽に使うことができ、すばらしい結果が得られるのである。

Ronald MacNeil / William Keays

Ronald MacNeil received his BSAD from MIT and his MFA from RISD. He was cofounder of the Visible Language Workshop (with Muriel Cooper) and Principal Research Associate and head of the Intelligent Graphics group at MIT's Media Lab, currently a member of the Home of the Future group within Architecture. He has worked as an experimental printmaker, free lance photographer and conducted research in computer-based painting/printing, intelligent personalized design tools, constraint-based and case based graphical programming tools since 1977. His recent work focuses on seamless ultra high resolution projection displays, and novel interfaces which place users IN the data.

William Keays (CDN), native of Quebec, received a B.S. in 1991 and B.F.A. in 1997 from the University of Ottawa. He has been engaged in photography, sculpture, installation and electronic media for the past decade. He is currently a Science Master candidate at the MIT Media Lab where his work involves making innovative use of high-bandwidth devices in the creation of interactive installations.

MetaField Maze

This maze game is a familiar one. The marble rolls on a flat surface, its direction determined by two knobs which control the level on perpendicular axes. The surface is crisscrossed with a network of passages separated by shallow barriers and is accented here and there with the dreaded holes that swallow the marble, bringing the game to an end. The conventional version of this game which sits on a table top or precariously on your lap prompts the question: what are the ideal dimensions and controls for engaging in this activity?

The MetaField is a human-scale interactive projection floor. The reasons for adapting the maze game to this large immersive interface were self-evident and the act of doing so irresistible. A three-dimensional model of the maze is projected onto the floor with an imaginary pivot point at the very center. The model tilts, seemingly under the weight of the player, according to where they stand on the game surface. As the projected surface tilts, the marble moves through the maze and appears to obey the laws of gravity. If the marble falls through a hole the player must start over.

Human-scaled interactive systems succeed when a tight feedback loop is established between the actions of the player and the computer generated images and sounds that are fed to their senses. The *MetaField Maze* achieves this by providing a fast-paced, continuous activity demanding skillful initiative both physically and intellectually. A game strategy is developed intuitively, and the player's entire body is used to express it by moving frenetically over the full surface without any specific orientation; an ambi-directional, kinetic quality that hints at the elusive feeling of being inside a computer application.

MacNeil / Keays

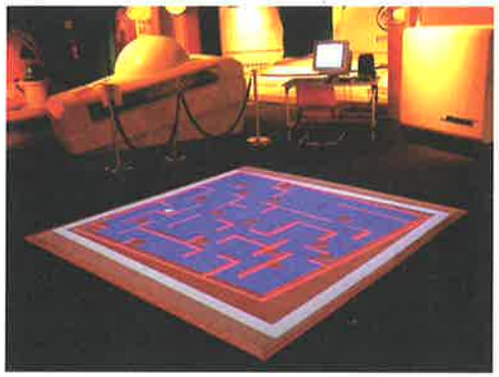
ロナルド・マクニール／ウィリアム・キース

ロナルド・マクニールは、MITの芸術デザイン工学部卒業、RISDにおいて芸術修士号を取得。MITメディアラボで故ミュリエル・クーパー女史と視覚言語ワークショップを共同創設。インテリジェント・グラフィクス・グループの長となり、現在は建築部門の未来住居グループのメンバー。1998年からMIT、CAVSの主任研究員。1977年より実験版画制作者、フリーランスのカメラマンとなり、コンピュータを用いた描画／印刷、個人用のインテリジェント・デザインツール、制約と事例を利用するグラフィック・プログラミングツールなどを研究。最近はシームレスな超高画質投射型ディスプレイや、ユーザーをデータのなかに取り込むような新しいインターフェイスに着手している。
ウィリアム・キースは、ケベック（加）に生まれ、1991年に理学士、1997年に芸術学士をオタワ大学にて取得。この10年間、写真や彫刻、インスタレーション、電子メディアに携わってきた。現在はMITメディアラボで理学修士候補として、広帯域デバイスをユニークに使うインタラクティブ・インスタレーションの創作を行なっている。

からだで探る迷路ゲーム

これは周知の迷路ゲーム。2つのつまみで垂直方向の高さを変え、平面上の球の転がる方向を決めるお馴染みのもの。面の上には低い壁で隔てられた迷路が交錯し、あちこちに開いた恐ろしい穴が球を飲み込んで、ゲームを終わらせてしまうもの。テーブルやひざの上に注意深く載せられるこのありふれたゲームは問いかける。もっとこのゲームに没頭してしまうような理想の大きさと制御の方法はないだろうか？

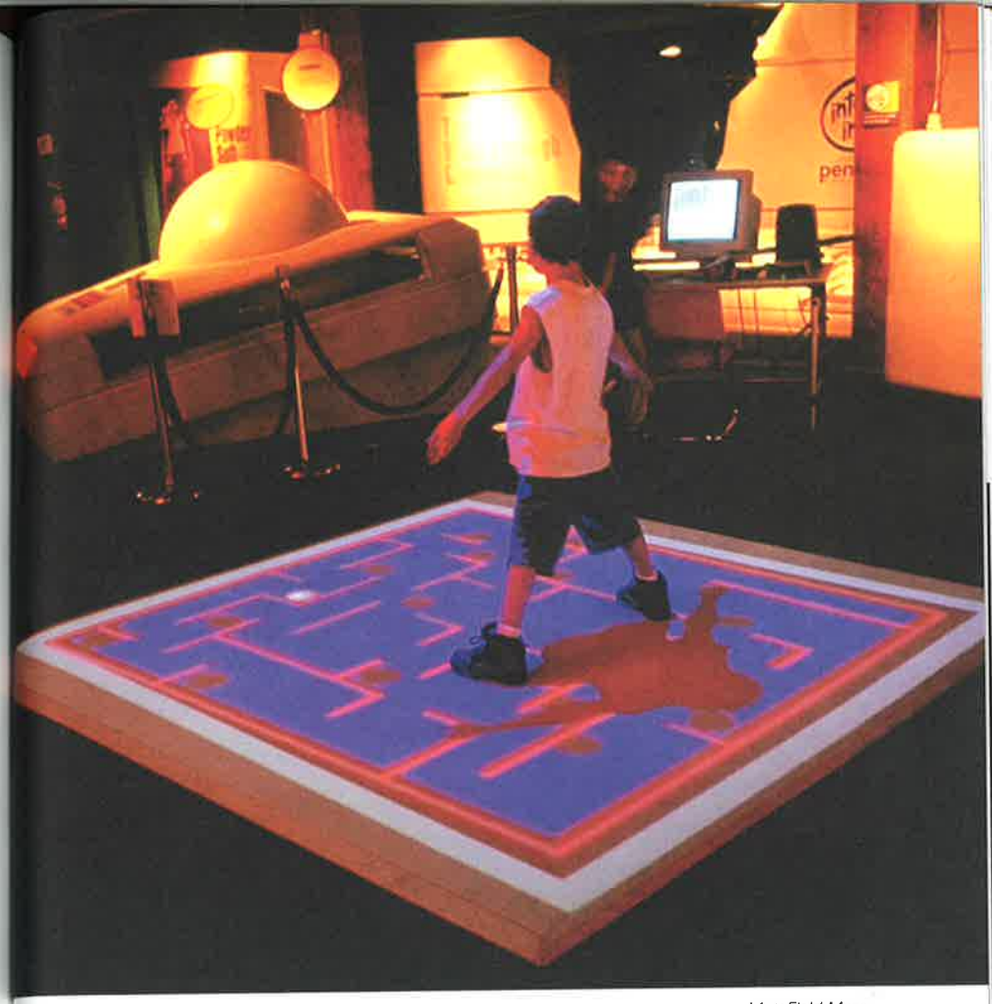
参加型のこの迷路ゲームは、体全体が入るようなサイズで床に投影される。この迷路ゲームをこんな観客が入り込むような大きな作品へと作り替えた理由は、ほとんど自明なものであり、それが抵抗しがたいほど魅力的だったからである。この3次元迷路モデルは、中心に仮想の回転軸を持つかのように作られて床に投影されている。ゲーム面上にプレーヤーが立つと、その位置によってその重さで傾くように見える。投影された面の傾きによって球は、重力の法則に従っているかのように迷路の中を動く。球が穴に落ちてしまったら、また始めからやり直さなくてはならない。
プレーヤーの行動と、その感覚に伝えられるコンピュータが生み出す映像と音との間に密接なフィードバック・ループが確立するとき、人体サイズのインタラクティブ・システムは、始めてうまく機能する。「からだで探る迷路ゲーム」は、頭と体の両方を積極的に速いペースで絶え間なく動かさせることで、これを達成している。プレーヤーが体全体を使って迷路の上を激しく色々な方向を見ながら動き回ることからも、ゲームの戦略は特に教わらなくても直感的に理解されていることがわかる。



This notion is enhanced by the slight tilting of the computer-generated model which has the uncanny effect of challenging the player's sense of balance, further contributing to a heightened sense of immersion.

The *MetaField Maze* exhibits highly engaging computer-mediated activity through a harmonious ensemble of scale, technology and application.

Design Assistance: Tim McNerney
Software Contribution: John Underkoffler, Silicon Graphics



MetaField Maze
1998

双方向の、力学にのっとった動きは、コンピュータのゲームの中にいるという不思議な感覚を味わわせる。この感じは、コンピュータが作り出すモデルがわずかに傾くことによって強調される。それはバランス感覚が試されているかのような不思議な効果をプレーヤーに与え、さらなる没入感をもたらすのである。
「からだで探る迷路ゲーム」では、大きさ、技術、内容がうまく調和し、コンピュータが操るゲームに没頭してしまうのである。

デザイン・アシスタント：ティム・マクナーニー
ソフトウェア製作協力：ジョン・アンダーコフラー、シリコン・グラフィックス社

Studio Azzurro

Studio Azzurro is working concern specialized in video production and artistic experimentation that was set up as a production research group in Milan in 1982 to produce visual arts, after receiving a request to produce a stage set from Memphis Design Group. The diverse professional expertise of three people came together to create Studio Azzurro: FABIO CIRIFINO (photography), PAOLO ROSA (visual arts and cinema), LEONARD SANGIORGI (graphics and animation) and since 1997 STEFANO ROVEDA (interactive systems). The constructive encounter with a variety of professional experiences and the awareness that a productive relationship with a market place was both necessary and inevitable alongside contacts with the more classical channels for artistic experimentation, were the ingredients that determined the form of the activities of the Studio Azzurro.

Frammenti di una Battaglia

This interactive installation is a reduced version of the project realized in a space within the great wall surrounding the ancient city of Lucca in Tuscany. This wall has protected the city against many assaults through the centuries, including the latest threat of modernity. Lucca still has a charm, which can take us back to bygone times.

With this installation we try to bring back to life the images and sounds of a battle emerging from the past. We have taken as our reference the *Battle of San Romano* by Paolo Uccello, the great Renaissance artist who was a pioneer in the use of the "new techniques of perspective".

Frammenti di una Battaglia shows four holes dug in the ground as if trying to bring back to light lost memories. The video-projections give shape to natural materials – water, leaves, sand, etc. These may be prompted by voices and sounds created by the audience: a scream, an utterance, and a clap of the hands. At the moment the installation is activated and from under the materials different fragments of action appear, as well as short appearances of figures engaged in a fight.

But is this the battle we want to narrate? Or is it the amusing battle of voices and screams resounding in the hall? Or is it the metaphorical version of a war of electronic images? There is an interplay of meaning – the extraordinary expressive value of the voice of the audience whose will to activate and see the images turns into a performance, while at the same time a subtle connection surfaces between the ancient battle and the modern technology used to re-enact it. Today, the balance of power in a war is not anymore based on bombs, but rather on the instant power of interceptors, of sensors, of electronic teledisplayers which can observe, see, and 'fix'.

Glances in such a sensitive space are endowed with the power to evoke and develop what the presence and participation of the audience will complete. The action, the dialogue in a shared space, utilizing natural interfaces, have often turned us into astonished spectators of the audience's action making us oblivious of the fact that we are the authors.

Italian to English Translation: Lia Beretta
Cooperation: miho project

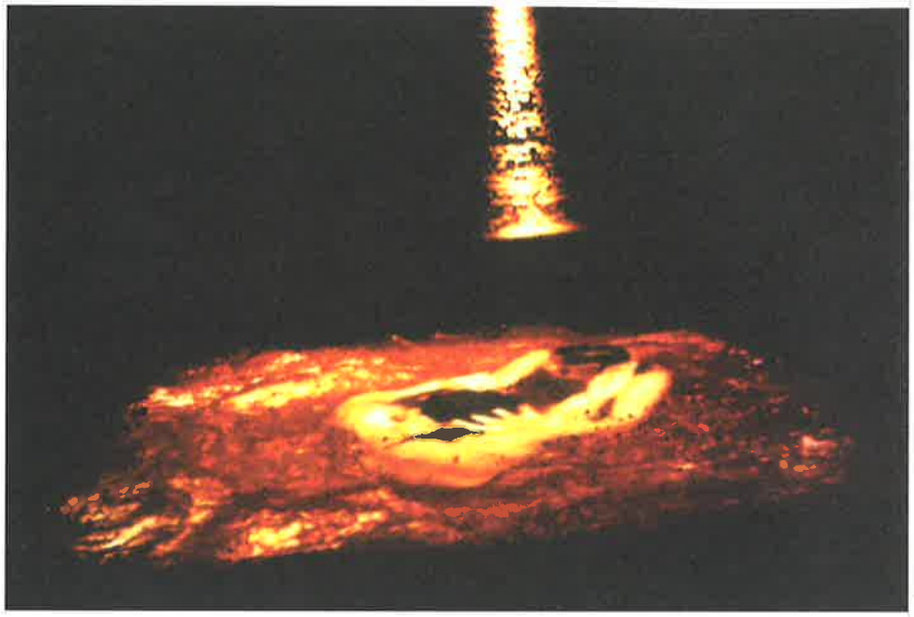
Studio Azzurro

スタジオ・アッズーロ

1982年、デザイナー集団メンフィスから舞台装置の制作依頼を受けたのを機に、実験的なアート映像の制作研究集団としてミラノで活動を始める。カメラマン出身のチリフィーノ、映画制作のローザ、グラフィック、アニメーション出身のサンジョルジの結成メンバーに加え、1995年からインタラクティブ・システムのステファノ・ロヴェーダが参加。彼らの作品の原点である環境ビデオとは、「空間と、音声と、一群のモニターが映し出す様々な画像との間に一つの関係を打ち立てようとするもの」。空間軸のみならず時間軸をも備えたインスタレーションである。現在彼らはコンピュータの世界でも語られる「インタラクティブ」をキーワードに作品を展開中である。

戦いの断片（戦いの全景より）

このインタラクティブなインスタレーションは、もともとルッカの町を囲む長大な城壁の内部空間のきわめて印象的な場所のため我々が制作した「戦いの全景」(1996) の縮小バージョンである。この城壁は、今日に至るまでほぼ原形を残したまま保存されてきた偉大な文化遺産で、何世紀にも渡り、現代の記号文明の侵略も含めあらゆる形の侵入からこの町を守ってきた。いわば時間の痕跡を満載し、我々を別の時代へと運ぶ古代都市の魅力を保つ町。戦争の光景と喧噪とを再現しようという構想に基づいた我々のプロジェクトは、こうした文脈のなかから生まれてきたものである。
その構想の実現のため我々は一枚の素晴らしい絵画を取り上げた。「遠近法という新技法」を最も大胆に用いた偉大なルネッサンス画家の一人パオロ・ウッチェッロの『サン・ロマーノの戦い』である。
この作品は、まるで記憶の残滓に再び光を当てるかのように、地面に掘られたいくつかの穴から構成され、その内部でビデオプロジェクターが自然の要素（水、葉、砂など）を映し出す。この映像は、観客が発する叫び声や音や手をうち鳴らす音によって作動し、さまざまなアクションの断片—肉体をぶつけ合って戦う人物たちの短い即興劇—が現れる。だが、これが我々が語ろうとする戦いなのだろうか？それとも、インタラクティブな環境のなかで響き渡る叫び声のなかで、観客が興じる戦いなのか？あるいはまた、電子的な映像による戦争のメタファーなのだろうか？
さまざまな意味が交錯し合い、観客の声の驚くべき表現力が発見される。それは、スイッチを作動させ、映像への願望を、まるでパフォーマンスのように響き渡らせる。一方、そこには、古い過去の戦いの引用を現代のテクノロジーへと結びつける何かが微妙に現れる。実際、現代の戦争では、新しいパワーバランスは、爆弾よりもむしろ、瞬時に観察し、目撃し、「凝視する」センサーや電子探知機の力の上に築かれる。ポール・ヴィリリオが語る通り、武器の力より頭の働きの方が死命を制する西部劇の決闘のようでもあり、〈まなざしの一撃〉の方が〈火器の一撃〉よりも大きな効果を発揮するようだ。知覚されたものは、すでに失われたものと同じだからだ。



Totale della Battaglia
1996

〈まなざしの一撃〉は、こうした〈インタラクティブな環境〉では、空間のなかに記憶を呼び覚ます役割を果たすが、それは観客が訪れ、参加して、はじめて完成される。彼らのアクションは、共有され、社会化された空間のなかで展開される。我々がナチュラル・インターフェイスと呼ぶものを自在に用いる彼らの対話は、我々を巻き込み、我々を、そのアクションを驚きの眼差しで見守る観客へと変えていく。

伊英翻訳：リア・ベレッタ
協力：ミホプロジェクト

Schedule for Related Events of the World Forum for Media and Culture

International Art and Media Symposium

Date: March 7–8 (Sunday and Monday), 1999
Place: Softopia Japan Center, 1st Floor, Seminer Hall
4-1-7 Kagano, Ogaki, Gifu
Convenor: World Forum for Media and Culture Committee

Day 1: [Artist Talk]
Time: 1:00p.m.–4:00p.m., Sunday, March 7, 1999
Presentation and Discussion by the invited artists.

Day 2: [International Art and Media Symposium]
The Art of the Interface
Time: 1:00p.m.–4:00p.m., Monday, March 8, 1999
Discussion by the invited Panelists.

Panel Members:

Axel Wirths
Born 1960, Axel Wirths is founder and director of 235 MEDIA in Cologne, an international media art distributor. He organized several exhibitions, festivals and TV-series, held numerous lectures. He worked as a freelance media-consultant for the Themepark of the EXPO 2000 in Hannover. Since 1993 he has been engaged as curator of Media Arts at the Art and Exhibition Hall of the Federal Republic of Germany in Bonn.

Erkki Huhtamo
Erkki Huhtamo is a media scholar, writer and curator. He is currently working as a visiting professor at University of California, Los Angeles (UCLA), Department of Design. His specialities are media archeology and the history and aesthetics of media art. He has published many studies and articles in ten languages, lectured widely around the world and curated several international exhibitions of media art.

Lev Manovich
Dr. Lev Manovich (manovich@ucsd.edu) is an artist, a theorist and a critic of new media. He has published more than thirty articles which have been translated into many languages and reprinted in sixteen countries. Currently he is working on a book entitled "The Language of New Media" for the MIT Press.
http://jupiter.ucsd.edu/~manovich

Dan O'Sullivan
Dan O'Sullivan is an associate professor at New York University's Interactive Telecommunications Program (ITP) in the Tisch School of the Arts. In 1992 he created the Physical Computing course at ITP which has since be taught extensively elsewhere by him and others. Prior to teaching at ITP, Dan worked at Apple Computer's Human Interface Group where he was the first developer of QuickTimeVR.

Concurrent Exhibition: The graduation exhibition of IAMAS

Date: March 5 (Friday) –14 (Sunday), 1999
Place: Ogaki Information Studio (Softopia Japan Annex)
4-35-10 Kono, Ogaki, Gifu

世界メディア文化フォーラムの関連事業プログラムの日程

アート・アンド・メディア国際シンポジウム

期日：1999年3月7日（日）3月8日（月）
場所：大垣市ソフトピアジャパンセンター1階　セミナーホール
岐阜県大垣市加賀野4-1-7
主催：世界メディア文化フォーラム実行委員会

［第一日］アーティスト・トーク
招待アーティストによるプレゼンテーション（各10分）及びディスカッション
期日：1999年3月7日（日）13:00–16:00

［第二日］国際シンポジウム
アートをめぐる「対話」—The Art of the Interface
著名な海外のキュレーター、評論家、教授を招いての
プレゼンテーション及びディスカッション
期日：1999年3月8日（月）13:00–16:00

パネラー：

Axel Wirths（アクセル・ヴィルツ）
ケルンの235メディアの創始者であり、ディレクター。メディア・アートを国際的に紹介する。展覧会、TV、講演など多数。ハノーバーEXPO2000でのメディアコンサルタント。1993年よりボン（独）の国際芸術展示ホールにてメディアアート部門のキュレーターとなる。

Erkki Huhtamo（エルキ・フータモ）
フィンランドのメディア・アート評論家、昨年からロサンゼルスのUCLAの非常勤教授（デザイン学部）。「メディア考古学」についての評論、海外でのレクチャー、国際的な展覧会のキュレーションなど多数。

Lev Manovich（レヴ・マノヴィッチ）
カリフォルニア大学サン・ディエゴ校（UCSD）のVisual Art Departmentの教授で、メディア・アートの評論家。ニューメディアを、美術や映画の歴史と関係させ、現代ビジュアル文化の一部と捉える。現在 "The Language of New Media"（MITプレス）を執筆中。

Dan O'Sullivan（ダン・オッサリバン）
ニューヨーク大学ITPのフィジカル・コンピューティングの教授。インタラクティブTVの「ダンのアパート」等を制作。現職の前にアップルコンピュータ社のヒューマン・インターフェイス・グループにてQuickTimeVRを開発。

同時開催：IAMAS第2期生卒業制作展

期日：3月5日（金）–3月14日（日）10:00–17:00
場所：大垣市情報工房・ソフトピアジャパンアネックス
大垣市小野4-35-10