Beam me up
International online project by Reinhard Storz
www.beam-me.net

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with essays and
documentations of art contributions
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Beam me up is an Internet publication with scientific and artistic essays for our present-day idea of space.

Beam me up makes inquiries about our present-day appreciation of space, as expanded by the media. What is being called cyberspace and virtual reality opens up the vague idea of a space, thought of only as symbolical, which eventually also becomes a place of real presence and action. Beam me up, Scotty – this call, having become popular with the science-fiction series Star Trek contains as poetical charm the idea of transcendence between the most different space qualities. Indeed, physicists, today show for quantum mechanics' bizarre world, the possibility of teleportation of photons, while cultural sciences stand up for a term like spatial turns. The change of direction toward a topical approach, toward spaces as a stage for historical and cultural events is being postulated. In comparison political Utopias (Gk not a place) seem to have no more room in the globalized society. Space gives rise to worry, Michel Foucault stated in 1964: We live in an age of simultaneousness, of stringing together, of the close and the far, of juxtaposition, and the scattered. Decades later, hungry Americans order their next-door-pizza by telephone via connections of call-centers operating from India, without becoming aware of their trip around the world by telephone.

There's not only Newton's space in this world – this uniform, nowhere marked, into each direction of equal value but sensory not perceivable being apart from each other. The space of our corporeal presence is different from the one of its visual presentation, and state borders divide other spaces than the gateway to the hereafter. There's a multitude of spatial concepts and technologies to overcome distances and borders. According to Martin Heidegger we might find what's peculiar about space by trying to listen to language. What does it speak of in the word space? In there speaks the clearing away. This means: to root out, to empty wilderness. The clearing away yields the open air, the open for a settling and living of man. Clearing away is the release of places. Archaic discoverer’s metaphors have also been marked for the WWW net’s space experience. In the WWW the navigational space of seafarers, surfers, pirates, and logbook writers presents itself to us, an astonishingly slowed down and clear world, when you think that already the early railroad with its unhurried transport velocity has made fundamental ideas of time and space sway. Heinrich Heine: Space is being killed by the railroad, and nothing but time is left. The Web's virtual space can be traveled through, traveled across, and conquered like the first reality's old space. Paul Virilio talks about an audio-visual vehicle one is using for this kind of travel. Movement on the spot, the advent of a last generation of vehicles, of means for long-haul traffic, as if the conquest of space eventually turned out to be the mere conquest of pictures of space.

The project Beam me up develops its treatise on the space topic in the worldwide as well as space-negating medium Internet, the technology of which is based on
flat, framed picture displays. Hence, the artists cannot draw up space-consuming installations, sculptures and architectures for their contribution to the project, but are medially tied back to texts, sounds and the central-perspective picture space as are the scientific authors. Which kind of expanded possibilities the artists will find in the net-medium we’ll see in the course of our project. Hence, the publication Beam me up offers a polyphonic reflection within the medium of a still young and global communication channel accessible to many people.

The publication form of an Internet magazine with specifically produced art contributions is hardly known yet, so far. Actually, our Internet magazine integrates all qualities of the digital and networked media technology. Among these are the worldwide participation of authors – from China and India via Europe and America –, the private access at one’s home computer for the audience and the application of different multimedia formats which reminds one, with Beam me up, of a virtual art exhibition, a TV channel or an electronic magazine, according to the contribution.

For Beam me up we collaborate with guest curators. Art experts from different countries and continents get the invitation to entrust artists, scientists and art scholars with contributions on the project’s topic and to attend to them as curators. Through their collaboration we hope for an opening of the thematic discourse, an expansion of the international spectrum of contributors and, in the future, also a widening of the project’s public.

Over the next months Beam me up magazine will regularly be enlarged by new contributions. With that, the authors and artists invited will have the possibility to shape and link their own contributions with the help of our data bank’s tools. Since the richness of material will grow rapidly, we invite our guest curators in a next phase to put together a limited selection of existing contributions as subjective chapters or as Guided Tours. This offer is meant to make an overall view of Beam me up easier for visitors.

Beam me up is a new online production by xcult.org. Since 1995 we organize and curate Internet-based art and text projects which deal with questions of our understanding of reality and our use of the media.
Christina Vagt
– At The Stadium.
Heideggers Media Of Topology

Christina Vagt studied cultural studies and history at Humboldt-University in Berlin. From 2005 – 2007 she held a scholarship granted by the research training group »Mediæ Historiographiæ« in Weimar. She is currently working on her phd-thesis on Heideggers concept of media within the context of modern physics and as an academic staff member for the exhibition »Work. Meaning and Care« at Deutsches Hygiene-Museum in Dresden (June 2009).
In 1951, Martin Heidegger delivered a brief history of topology to architects and philosophers at a conference in Darmstadt. It ranged from the Greek stadion - which was both the site of games for gods and mortals and the source of the Greek Olympic length of 192m - to the general field theory of physics.

The unity of word and thing, of mathematical unit and place had already lost meaning with the early Latin translation of spatium and space becomes abstracted by various communal and religious implications: spatium signifies an empty „space in-between.“ (1) Now, space is conceived as a „mere gap“ between things, as bare spatium. Soon it was perceived as bare extension and at the next step we're already with Heidegger in the mathematical topology of the 19th century and Bernhard Riemann and the „purely mathematical constructs of multiplicity with any number of dimensions.“ (2)

Heidegger’s philological lecture on the stadium addresses the architecture of the newly founded Federal Republic of Germany. The conference „Men and Space“ was held during an exhibition in Darmstadt, which also featured photographs of three stadiums in the „Educational Space“ section: Nuremberg and Vienna, both constructed in 1927 based on designs by Otto Ernst Schweizer and the Olympic Stadium built in Berlin by Werner March in 1936. Otto Ernst Schweizer gave a lecture on urban planning, which recounted the history of progress in public construction, from stadium constructions in ancient Greece based on the Hippodamian plan to his personal stadium project in Nuremberg without political references. (3)

In contrast, Heidegger speaks in his pastoral chant on Sunday morning at 10:00 a.m. about the decline of living resulting from two world wars and the industrialization – while completely omitting the recent history of Nazi stadiums.

Heidegger discusses the topology of people and space with the term „living“ as a historical and medially alterable ontology implanted in bridges, power plants and stadiums. Space is no longer, or not yet understood as a relationship-bearing action between people and things (Greek: pragmata) but as bare interspace („bloße Abständigkeit“). Conceived as a world concept („Weltentwurf“) of place, dwelling is defined as a philosophical reassessment of architecture and its responsibility, as architecture assists in building the house of being. (4)

Audio recordings and transcripts of Heidegger’s lecture do not contain heckles or the expected questions at the conclusion. Except for one architect’s ears, it appears to have faded away without notice: in the discussion following Heidegger’s presentation, Hans Scharoun counters the hostilities from the Reich’s autobahn designer Paul Bonatz, that his structuralist architecture would „think in pieces“ the imaginative construction, with Heidegger's topological reflection on space as something that must be „placed in“. (5)

In Heidegger’s presentation, Scharoun rediscovers the position of his own buildings, the striving for an organic connection between landscape and architecture, while maintaining a topological, structuralist position. According to Scharoun, architecture (like community) is not derived from addition, surface area, or territory but should be imagined coming from the space of an individual, resulting from local „force points“ and „time conditions“. Scharoun employs physical field metaphors as well.

In the midst of a prospering Germany during the Adenauer era, with Germans cultivating nothing more than their retreat into private life, the newly rehabilitated Heidegger speaks of the „loss of home and homeland.“ Already in his „Letter on Humanity“ from 1946, Heidegger had explicitly distanced himself from the terminology of life and anthropology; instead he intoned the forgotten „dwelling“ as „abidance among things“ of gods and mortals. (6) He used the term „Ge-stell“ (framing) to criticize a science-rationalized and technically medialized world, whose greatest affliction is „homelessness“ and the loss of „things“ (Verlust der „Dingheit“). For Heidegger, the history of dwelling is also media history: the stadium was followed by the printing press and the printing press was succeeded by television.
In a 1966 interview with Der Spiegel, Heidegger talked about his fear of the first electronic images that were being sent from the moon to Earth at that moment. “Everything is working properly. The most frightening aspect is that it works and that functioning always drives additional functions and that technology is increasingly uprooting people and tearing them away from the Earth. I don’t know if you were, but I was definitely frightened when I saw the images of the Earth from the moon. We don’t need any atomic bombs. People are already being uprooted. We live in purely technical circumstances.” (7)

The „total uprooting“ of people doesn’t require atomic bombs. It is already taking place on television screens, which eliminate any distance. And thus, the images from American spacecrafts transmitted from the moon to Earth in 1966 via radio waves are not a window to the moon; they are an expression of the Ge-stell (framework) that operates here as a telegenic and bio political control regime and produces an event space called the universe.

Heidegger’s fear of the television had only one exception: soccer. As an old man, he enjoyed watching European Cup matches on television and is a well-known fan of Franz Beckenbauer’s „precision ball-handling“. (8)

With Heidegger and a brief media history of live soccer broadcasting, we are no longer in Foucault’s space age, of the simultaneous, of the near and far or of juxtaposition; (9) we are in a game, event, and probability space and in the age of simulation. From a medial perspective, the stadium has long been a part of the television disposition.

The easing of soccer’s offside rules in 1925 made the sport feasible for radio - transmission of a fully live broadcast, allowing for the commentator coverage to be synchronized with the background noise of the stadium, providing an exciting home listening experience. The game became faster and higher scoring. (10)

The images listeners had in their minds was evoked by medial rhetoric on the radio. Since exceptionally gifted soccer commentators are as rare as exceptionally gifted soccer players, the control over the mind’s eye of spectators was soon transferred to the visual telecommunications media.

Initial attempts were made in England using coordinate systems. Radio listeners at home could follow the course of a match through player and ball coordinates, which were announced by commentators. The BBC Radio Times published the first playing field diagram for a match between Arsenal and Sheffield on January 22, 1927. Announcer H.B.T. Wakelan described the action while his assistant C.A. Lewis provided information on which quadrant the ball was in. (11)

But soccer is not like a game of Battleship. The scope of the game results from the limits of the field, the distribution of players and the movement of the ball. Therefore, the portrayal of movement is also subject to a grid, fragmented into lines, and the signal is modulated into a carrier wave and transmitted alongside the announcer’s words.

In 1936 television broadcasting begins in Germany. The Olympics featured a live broadcast from the Berlin stadium daily from 10am to noon and 3pm to 7pm. Because so few people had their own televisions, viewers did not watch at home but in the approximately 25 public television parlors in Berlin. This public viewing became extremely popular during the event and the Reich broadcasting company tallied 162,228 viewers during the games. For some events, it was more difficult to find a seat in front of a television set than in the stadium, which may have been due to financial as well as visual reasons. Despite small and distorted screens, the visual impact of numerous cameras and telephoto lenses were superior to viewing possibilities in the huge stadium. (12)

In addition to unsystematic television technology, synchronizing commentary and camera images was also problematic. Cameramen could follow announcer commentary with headphones, but the announcer had no video monitor available. To the disappointment of the propaganda ministry, verbal conflicts repeatedly erupted between video and audio and thus the cursing of a cameraman found its way into the broadcast. (13)
Successfully attempted for the first time in Berlin in 1936, the usage of stadiums as television studios continues after World War II, despite poor standards. What began as simultaneous or synchronization problem, is today subordinate to a simulation option. The stadium as a community-building scene of sports reporting, increasingly assumes the form of a green screen. It is actually a component of the television studio but virtually impossible to detect on television.

As seen during the 2008 European Cup in Austria and Switzerland, soccer stadiums allow a clear bird's eye perspective characterized by a right-angle to the field or monitor, thus providing exceptional proximity to the field and resolution of boundary lines in the television image. During some corner kicks, functionally separated groups in the stadium such as players, fans and cameramen, can no longer be clearly differentiated. No track separates players from spectators, allowing soccer stadiums to become a new form of social staging on television, as seen in the carrying of players' children or direct physical contact with fans after a goal.

Klaus Theweleit knows that modern stadium construction attempts to increase the experience of such proximity, (14) but the latest Olympics in China actually proved the exact opposite. Here, it was shown how poorly soccer functions without the visible proximity of fans on television. The gigantic stadium in Beijing is not appropriate for soccer, as the distance between the playing field and spectators is too great. The Olympic Games and its stadiums are still strongly focused on track & field (and political) events. The camera holds the appropriate distance and overview for the 100m race. Even when someone like Usain Bolt runs so extraordinarily fast that he can hardly witness his own victory.

Electoral events of American presidential candidates in mega-stadiums as that in Denver were less about proximity than distance and masses of people.

According to Peter Sloterdijk, modernity has developed the first cooperative games (team sports), which express a new social idea: „modern soccer with its fascination of the rolling object is a modern cult of Fortuna. The ball stands for injustice that we can't do without: the unfairness of luck.“ (15) The problem of „lost community“ and the „retreat of the political“ is not superfluous in modern soccer and well-known to later philosophy. (16) The „gathering at a spectacle“ is part of the Ge-stell. In the television disposition of live coverage, the apparent difference of (ancient) humanism, between „the anthropomorphizing, patience-forcing, reflection-stimulating lesson“ and „the dehumanizing, impatient, explosive sensation and intoxicating maelstrom disappears in stadiums.“ (17) Political cesura and continuities are visible in equal measure under the conditions of television.

Following a 3:2 victory in Bern, Germany becomes world soccer champion in 1954. As in previous matches, the fans in the stadium begin singing the fascist first verse of the German national anthem. The horrified Europeans have no other option but to interrupt the broadcast of the match. The game nevertheless becomes a legend in the history of the Federal Republic of Germany. (18)
(1) In printing, spatium signifies a hot type for an empty space. The stadium assumes a similar function for buildings, like the printing press and typewriter are for writing: it medializes the situation and heterotopologises space.


(4) Dwelling has always meant staying among things. Bridges and stadiums are buildings, not homes; but they stand in residential areas. Buildings house people and people inhabit buildings. cf. Heidegger, Bauen Wohnen Denken, p. 139 u.152f.


(7) Heidegger’s interview with Der Spiegel, 23.09.1966.


(9) cf. Michel Foucault, Andere Räume, in: Karl Heinz Barck u.a. (Ed.), Aistheis, Leipzig 1990, p. 34.


(11) cf. BBC Radio Times, 22.01.1927; On the following Monday, January 25 1927, the Manchester Guardian published a positive critique of the radio diagrammatics.


(13) Ibid., 128f


(15) Peter Sloterdijk, Spielen mit dem, was mit uns spielt. Über die physischen und metaphysischen Wurzeln des Sports zwischen griechischem Stadion und römischer Arena, in: NZZ online, June 14, 2008.


(17) Peter Sloterdijk, Regeln für den Menschenpark, p. 4.

Joe Winter – ‘Progressive Scan’
Studie

Joe Winter’s work challenges how we understand the space of the computer screen and filmic space-time. For his new online commission, Joe has gone out into the world around him (New York) and shot videos on a small handheld digital video camera. He has then played this movies back with the small screen facing the bed of a flatbed scanner. Each image is thus produced by a linear scan capturing a moving image. What results is a vision of a literal traversal of space and time, and the representation of that traversal shown simultaneously in the images. These studies from Joe’s Progressive Scan project remind us that technology, no matter how much it is upgraded, will never be able to truly capture how we see the world. Joe’s online ‘animations’ are at once both films and drawings, which you the viewer can control (in terms of their speed, for instance), of spaces which seem familiar from lived experience, but have been flattened into little more than traces of once live, now archived, digital data.
Regine Buschauer
– You Are Here. Spaces
Of The Mirror, The Path,
The Map

Regine Buschauer is a media researcher and analyst who has been working as an expert in human
computer interaction and media practices since 1999. She has managed numerous projects in the
areas of innovation and new media development. Between 2002 and 2008 she pursued her PhD in media studies at the University of Basle, focusing
in her thesis (forthcoming) on spatial relations of communication media. She lives in Zurich.
What might be learnt from computer games in times of “locative” digital media and navigation charts. And from phenomenology

“Cyberspace”, “virtual reality”, or “digital space” are those key words a new space of the media is being referred to since the 1980s – as a kind of placeless virtual universe, “in” which one seems to be in contrast with real space which seems to conquer or to dissolve it. Such ideas are conspicuously being undermined, however, by a broad present-day development of “locative” media, digital “Geo-” and positioning techniques. If “digital spaces” in the form of GPS navigation systems become components of everyday space experiences (like trucks occasionally getting stuck under bridges), the picture of a virtual space detached from real space obviously has ceased to be valid. Neither space experiences can be understood according to a schematic opposition of real and virtual space, nor are they to be appreciated in the model of the one homogeneous “container” space is generally identified with, as the more recent media and cultural scientific space debates have emphasized in manifold ways.

Developments like those of “locative” media raise specific questions about the space one localizes oneself in and, hence, they bring to one’s notice the basic inconsistency of space not only underlined since the digital media: as Michel Foucault (1967) has put it subsequent to phenomenological space descriptions, we do not live in a “kind of void, inside of which we could place individuals and things”, but in a space “charged with qualities” (“tout chargé de qualités”), and where heterogeneous spatial relationships overlap. As a discontinuous “espace vécu” (Eugene Minkovski) space is not to be reduced to one uniform spatiality.

Such approaches are a possible basis to describe a present-day heterogeneous space experience beyond the contrast of real and virtual space. Contrary to undifferentiated talk about “cyberspace”, it is advisable according to what suggested Herbert Hrachovec (1996) “to expect” all those “distinctions” of the digital space which are meant for other space experiences as well. - Local “inquiries” take the place of the new, yet to be conquered universe. Inquiries which e.g., can take their starting point from the question how, in certain digital media, a virtual space is exposed, where one localizes oneself in. One example to demonstrate this is the medium computer game.

Play world/mirror world

Computer games – and especially first person ones (“Ego Shooters”) – represent this experience more than other digital media to (also) be in a virtual space. This Being There of the computer game can be traced back to a series of factors, most of all to the interactivity of the game that in fact constitutes what becomes a coherent space for the player, “in” and with which he acts (in the case of Ego-Shooters and other action games: in a time-critical way, hence with high concentration). In the picture-spatial There the particularity of the said type of game expressed in its name is a central-perspective (“ego”)-view, in which the player finds himself put in the place of someone acting and moving in space itself. In the game, this (diegetic) picture space represents one out of several visual levels; and it is part, as has been shown in detailed analyses of this type of game, of a complex visual spatiality of the (moving) game. With that it corresponds – and this distinction is to be picked out here - to one of two spatial modes which usually can be found in “Ego Shooter” games.

In the mode of the said picture space the player finds himself carried into that space – the space of a building, for instance, with floors, doors, etc. There, he has no view onto an (avatar-)figure in that space; his view rather coincides with that of this acting figure of which usually only the hands (with the weapon) can be seen. This picture space’s specific principle is conspicuously exceeded – and with that demonstrated as such – when a mirror comes into play and makes the player see a figure alien to him, in Duke Nukem 3D, for instance.

The mirror, an often used metaphor for what’s new, what’s “doubling” in virtual
space becomes, here, a game of the computer game, inside and with its picture space. The space through which, in the game, a path has to be trodden (and shot through) presents itself, in this mode, as a sometimes mazelike environment of walls (a windowless bathroom, for instance), obstacles, etc. Seen from approaches of the “espace vécu”, the experience of this path-space or “hodological space” (Kurt Lewin) of the game points to an essential difference between space experience and the idea of the uniform, empty space. Because experiences of space and distances in “lived” space depends on paths and boundaries; following an example of Otto Friedrich Bollnow (1963), for instance, the neighboring apartment of the house next door is as far away as the way to get there, via staircase, street, etc. – that’s to say non-existent behind the wall, as long as one doesn’t hear it. According to Bollnow, in this experience of living space we still live in “caves” as it were.

Compared with this, the second mode to be found in Ego-Shooters exposes the game’s (path) space as map. The map has an important guidance function in the game; it is not a facultative addition, but a component of the game’s spatial world, where the player moves back and forth between the modes. In this regard, the space “in” which the player localizes himself is a two-sided one: it presents itself (in the interactive and moving game) in the interplay of two modes which have to be differentiated from each other. This is true not only for the computer game.

“You are here”

In the second mode, in the example with the bathroom and the adjacent rooms, space is represented as guidance map as in other map types, plans and outlines, two-dimensionally seen from above. In principle, guidance by means of maps requires the ability to “read” them as a symbolic reference context of its own which e.g., neither represents the said space of the mirror nor (- livable in apartments as well as during a hike -) the path space of the lived experience. The map user positions himself in this reference context by linking his situational place with it as a point on the map – no matter if this only was a virtual place in the medium of the computer game or an imagined place, such as the hike’s place of destination. A particularity of the map being, in this example that it already makes/anticipates this positioning and marks it, in this case represented by the figure. In a traditional, static form this kind of maps - nowadays widespread in navigational systems up to iPhones - is to be found in local maps which facilitate orientation, for instance at tourist “points of interest”. They require that the user’s place is identifiable or they represent, explicitly in the often added statement “You are here”, a basic principle of the map, according to which this place has to be identified with the respective point on the map; with that, this “here” doubles itself – in this respect comparable with the figure that appears on the map in the computer game’s virtual space. Rolf F. Nohr has also called the “You are here” positioning of the map user a “strategy of identification” (2001). It becomes evident as such when the call to position oneself is being brought to fail; in a playful PR for the Canadian “Playland” amusement park, for example.

Such playful and virtual displacements of the “here” accentuate distinctions – between here and there, between environment and map, between place and point. Contrary to a seemingly disappearance of space in “cyberspace” or to its identification with the map’s position space, it is such distinctions which are valid outside and inside a virtual “Playland” as well as facing it.
Bollnow, Otto Friedrich: Mensch und Raum. Stuttgart 1963


http://deposit.ddb.de/cgi-bin/dokserv?idn=965004759

The Web is being infiltrated by the news media. It equally transports Webcam photographs, newspaper headlines, and radio and television programs. No matter from which part of the world and in which language: in Omni and Tele Presence news are retrievable around the clock. Since there are electronic nets and programs our language has found nothing but metaphoric paraphrases for these electric spaces. Marc Lee’s Tv-Bot renders them visible in that he scans the Net through for data streams. Via programing code he forces transmission sources from 5 continents in front of our eyes and ears, and puts them together to a permanently self-regenerating news event from all over the world.
Signals, noise, frequencies, snatches of sound, distant voices. The movie signal is hardly to be recognized. Blurred edges, smeared images. Everything melts. Melts away. The absence of concrete images and the electrospheric soundtrack from overlapping radio frequencies, causes an abstract hypnotic void, a space without beginning or end, without clear structures.
Dr. Guillaume Belanger of the Gamma-ray mission Integral of the European Space Agency (the Science Operations Department, within the European Space Astronomy Centre in Madrid) has written a new essay that raises questions regarding our perception of this world, of what we know, and ultimately of ourselves. He draws his inspiration for the context in which he sets these simple but fundamental questions from our home Galaxy: its stars, its structure, and its nucleus, the supermassive black hole Sagittarius A'.
Darkness... cold... silence. Complete and perfect silence. In all directions: dark... cold... empty space. In the distance: the blue and vibrant glow of the Earth. Around it: dark, empty space. The Earth’s closest neighbour, Venus, is 40 million km away in the direction of the Sun. The second closest planet, Mars, is 70 million km away in the opposite direction. Our Sun, our life-giving Sun, is 150 million km away from us. The closest star, Proxima Centauri, is 4.37 light years or 40 000 million km away. 40 000 billion km. Inconceivably far, and yet so close in comparison to the distance to the centre of our own home galaxy, from which it takes 26 000 years for light to reach us. This centre, this core, this heart around which everything revolves---every star, every dust grain, every molecule---and towards which everything falls without ever turning back, is a very unusual place indeed.

What is near, what is far? Is your house near or far from your office? Is India near or far from your city? Is the Moon near or far from the Earth? Is the Galactic centre near or far from the Solar system?

What is small, what is large? Is a virus small and a spider large? Is your hand small and your house large? Is your neighbourhood small and your country large? Is Pluto small and the Earth large? Is the Sun small or large?

What is vast and how vast is vast? Is our solar system vast? Is our Galaxy vast? Is our local group vast? Is the sky vast? Is the space of our lives vast? The space of seeing and hearing, the space of tasting and touching, the space of feeling, the space of our thoughts? Are these vast?

The Milky Way contains approximately two hundred billion stars. How many have solar systems? All these stars add up to a mass of about 100 billion solar masses. But we know from their orbits that the total mass of the Galaxy is around 1000 billion solar masses. This implies that all the stars, together with all the dust and molecular gas floating around make up approximately one tenth of the mass of the Galaxy. Where is the rest of it? What is the rest of it?

When a particle orbits a massive object, its velocity along the orbit depends on its distance from the central object: when it is closer it moves faster, and when it is farther it moves more slowly. If the orbit is circular, the orbital velocity is constant and depends only on the mass of the central object, and the distance from it. In the Solar system, where the planets move in circular orbits around the Sun, Mercury, the closest to it, moves at about 50 km/s, Venus moves at 35 km/s, Earth at 30 km/s, Mars at 25 km/s, and so on out to Uranus that moves at about 7 km/s and Neptune at 5.5 km/s. But all the stars in the Galaxy for which we have a measure of proper motion with respect to the centre, are moving at the same speed: they are all orbiting the Galactic centre with a velocity between 220 and 240 km/s. This does indeed seem odd. It is as if they were held in place by something, as if they were embedded in an invisible but massive, collision-less but gravity-binding cosmic gel. Even more surprising is that this binding cosmic gel, this Dark Matter (as it is called), accounts for 90% of the mass of the Galaxy, and therefore dictates the global dynamics of its contents. So, what appears as this all pervasive dark, cold, empty space is not so empty after all.

We move further and further away from our solar system, further and further away from the plane of the Galaxy. Its structure reveals itself as a gracefully shaped spiral with brightly illuminated arms, sprinkled with numberless point-like stars, and rotating majestically in a sea of subtly glowing red. This vast and expansive spiral extends over 100 000 light years. On average, 1 to 2 stars are born in our Galaxy every year, typically with about half the mass of the Sun, but sometimes much more massive, reaching 100 solar masses and more. They come to life in the depths of molecular clouds: the cloud collapses under its own gravity, and through this collapse dense cores appear and provide the ideal environment for star formation.
Winding inwards, the spiral arms merge with the Galaxy’s central stellar bar: millions of old, reddish stars that rotate coherently about the Galactic centre as an elongated structure 27 000 light years in length. The bar sweeps through space, sets in motion the gas and dust, and defines the molecular dynamics. From its edges to the very heart of the Galaxy, we think that the gas moves either in large elliptical orbits aligned with the bar, or on smaller orbits perpendicular to it, and contained within the larger ones. Turbulence in the flow makes the gas fall from the outer to the inner orbits, and then from those towards the central gravitational well.

The one central point around which everything turns is the location of the most massive object in the Galaxy. A single object with a mass equal to that of four millions Suns, it moulds space-time of the central region, and yet it is invisible. Everything we know about it has been deduced or inferred by observing its surrounding and immediate neighbourhood. That, at the very centre of our Galaxy, is a supermassive black hole, is conceptually ungraspable, and yet it is inescapable.

A black hole: a state of matter for which we hold no description, and where gravity has overcome all forces (first compressing all electrons into a single shell around the protons, then compressing the electrons and protons together into neutrons, and finally overcoming the strong force, and compressing the neutrons into something beyond what we can describe or imagine, a state of matter beyond our theories and ideas). It is indeed difficult to conceptualize. A supermassive black hole of millions, and in some galaxies billions, of solar masses, is something entirely foreign. So far removed this is from what is conceivable to us, that it is most naturally perceived as science fiction. But we know that it is not fiction. We know that at the centre of our Galaxy there is a concentration of dark mass of four million Suns. We know precisely where its centre is---exactly at the dynamical centre of the central star cluster. We know its maximum spatial extent---it must be contained within the tightest and most eccentric orbit of any star orbiting around it. And we know that with respect to the Galaxy, it is perfectly still.

We know this from observations of the brightest stars around it, but also from the motion of molecular gas. In fact, it was close to thirty years ago that we found that the best explanation for the motion of the gas in the central part of the Galaxy was a mass distribution composed of an extended star cluster of about three million solar masses, and a compact source of about the same mass right at its centre. It was hypothesised that a supermassive black hole would appear as a very bright, compact radio source. A few years later, it was discovered.

The supermassive black hole at the heart of the Galaxy is known as Sagittarius A*.

A black hole is black: it does not emit any light. Newton published the Principia Mathematica in 1687 and since then we have had the notion of escape velocity: the speed at which an object must travel in order to overcome gravity and escape its hold. Interestingly, this velocity is independent of the mass of the escaping particle, and is determined by the mass to size ratio of the more massive object. It was pointed out long before Einstein published his Theories of Special and General Relativity in 1905 and 1916, respectively, that as this ratio increases by making the mass larger, the radius smaller or both, the escape velocity eventually surpasses the speed of light at the surface. The event horizon, the distance from a point-mass where light is unable to escape, the only place in the universe where light stands still, is known as the Schwarzschild radius: 2GM/c2.

For an object of one solar mass, the Schwarzschild radius is 3 km. For a typical black hole of 10 solar masses it is 30 km. If you recall that the distance between
us and the sun is 150 million km---a mere 8 light minutes, then can we ever dream of seeing this for even the closest stellar mass black hole in our Galaxy, V4641 Sagittarii (or SAX J1819.3-2525), about 1600 light years away? Not really. For Sgr A*, the Schwartzschild diameter is about 20 million km. Observing it from here, this size corresponds to an angular scale of 19 microarcseconds. (An arcminute is a sixtieth of a degree, an arcsecond is a sixtieth of an arcminute, and a microarcsecond is a millionth of an arcsecond.) Believe it or not, we can currently distinguish features on scales of 30 microarcseconds. This is done with a technique called Very Long Baseline Interferometry (or VLBI) that makes use of a network of radio telescopes all over the globe. VLBI has recently been used to observe Sgr A*, and revealed the intrinsic size of the emitting region at wavelengths of a few millimetres to be around 1 Astronomical Unit. This is as if 4 million solar masses were contained in the space between the Earth and the Sun. Within about 5 years, we will be able to distinguish the shadow of the black hole, the dark depression inside the event horizon, the well in the curvature of space-time produced by this massive object, against the background of the bright hot gas surrounding it.

I cheated a little with my connection between the escape velocity and the Schwartzschild radius. The escape velocity in classical physics is derived by equating the gravitational potential to the kinetic energy of an object with mass m. But light has no mass, and is therefore not subject to gravity, or is it? Although the concept of an astrophysical object whose escape velocity is greater than the speed of light has been around for quite some time, black holes are formally pure general relativistic objects, and it is only in the context of Einstein's theory that we can treat them mathematically.

For Newton, as for most of us with perceptions based on our everyday experiences, there is space, and events occur at particular times within this space. Objects, either still or moving with respect to some given reference, are contained within the space, and do not have any kind of influence on it. Gravity is explained as a field that pervades all of space, acting everywhere simultaneously and instantaneously. Every mass, regardless of its magnitude, acts on every other mass everywhere and at once. Light is without mass and therefore does not feel gravity, moving freely at infinite speed, in infinite straight lines.

For Einstein, space, time, matter and energy, are so intimately interwoven that they cannot be treated as if they were separate from one another. The speed of light, accurately measured in 1885 by Michelson and Morley to be 300 000 km/s, is the ultimate velocity for everything in the universe: nothing---no information of any kind---can travel faster than light. Matter, radiation and energy are simply different facets of the same thing, which is not really a thing, and the manner in which they are distributed defines the shape of space-time. It is the shape or curvature of space-time, not gravity, that defines the trajectories of particles and bodies. Consider the subtlety of this: the disposition of the total sum of energy---matter and radiation---shapes space-time and defines the rules of motion. But this energy that moves within this space-time follows its shape that it simultaneously defines. And since nothing can ever be still, and every particle is always moving with respect to something else, all space-times are always shifting and changing, continuously remodeled and reshaped by the matter and radiation moving within, and as them.

Everything is so interlaced, so intermingled. Space and time, light and matter, black holes and dust grains; the space between planets, the space between stars, the space between the spiral arms; the space of our world: delicate and tender, bright, green leaves, a single bird sitting on the bare branch of an old, withered tree in the morning sun, a poplar seed floating in the air, swaying gently up and down, and back and forth in the warm summer breeze; the space of our lives: the space of our thoughts and feelings, sometimes so vast and sometimes so small, the space of seeing and hearing, sometimes so bright and sometimes so dull, the space of tasting and touching, sometimes so sensitive and sometimes
so numb; the space of the bodies and minds: the space all around the body, the space between our fingers and toes, the space inside our nostrils, in our mouth, in our throat, in our lungs and belly. Where do any one of these spaces begin and where do they end? Where can we find any border, any separation? What do we really know? What do we really understand? Everything is so interlaced and so intermingled.

We look up at the skies at night, and we see Orion the hunter with his bright belt of three stars in a line, his dagger pointing down, and his arms and legs outstretched in all four directions. How far is Orion? How far is each star drawing out the constellation on the sky? Are they close together or far from one another? What else is there that we do not see behind and around the stars? What about the Great Bear, the Big Dipper? What about the winged horse, Pegasus? What about Aquila the eagle, and the Cygnus the swan? How much more is there than we can see? What about a cloudless, clear blue sky of a sunny summer day, where are the stars? Are they behind the blue of the sky, are they hidden within it? What about your thoughts, are they inside your head? Are they behind your eyes? Is everything that we say just a way of speaking about things, just descriptions and conventions that we use to communicate? When we say „it is hot“, what do we mean? When we say „I am cold“, what do we mean? When we say „stars“ and „planets“, „galaxies“ and „universes“, what do we mean? Do we know what anything is? When we see blue, when we see green, what is that? Is it the pigment, the impinging light, the combination of the absorbed and reflected wavelengths on the surface? Where is this blue, this green? Is it on an object, on its surface, inside of it? Is it in the eyes, in the cones and rods of the eye? Is it in the brain? And every day, a hundred, a thousand times a day, when you say „I“, out loud or to yourself, what do you mean?
The PIXEL COLLIDER (PICO) is a public online tool and machine in the search for the dark matter and smallest particles beyond the pixel. The PICO is a type of a particle accelerator involving directed beams of pixels.

Colliders may either be ring accelerators or linear accelerators - the PICO however is a non-linear and global one - living, growing machine and method involving the public. Each computer can become part of the collider, expanding the beam tube and injecting a pixel. The more computer are connected to the PICO, and expanding the beam tube, the more pixel acceleration is possible and collision energy increasing. Observing the pixel beam via various control monitors propelling through the tube. In case of a pixel collision, we may have the chance to observe the smallnesses and entities pixels are made of - far beyond the limits of earthly RGB.

"Daher glaube ich, dass es keinen Teil der Materie gibt, der nicht, ich will nicht sagen teilbar, aber doch aktuell teilbar ist; deshalb muss auch das kleinste Teilchen als eine Welt voll von einer Unendlichkeit verschiedener Geschöpfe angesehen werden." Leibniz
This untitled and previously unpublished poem was composed by Alec Finlay in 2008 after a conversation he had with the sound artist Honor Harger whose practice involves listening to radio signals from outer space.

Alec will compose a poem with the answer if anyone can supply it.

COMMENT BY GUILLAUME BELANGER
Is there such as thing as a photon or a phonon? Is light, a propagating electromagnetic field, really a wave, and is this wave really quantized into photons? Can a sound wave, a vibration propagating through molecules, be quantized into a phonon? If there is no air, how can there be sound?

COMMENT BY GUILLAUME BELANGER
If there are no molecules at all, how can there is propagation of sound?

COMMENT BY GUILLAUME BELANGER
Many cosmologists and astrophysicists alike hold to the Big Bang is a theory as The description of the beginning of it all. It is a useful description with some measurable and/or observable predictions and consequences that seem to correspond, at least partially, to what we see when we turn our eyes and instruments towards the sky. But is it reasonable to believe that everything, starting from space-time arose in a single moment from nothing at all, from a single point,
a singularity with quasi-infinite energy density? Even the question where did this single point of energy arise is non-sensical since the notion of space-time cannot yet be invoked to formulate or answer this question. From this shear energy eventually burst out elementary particles: quarks and gluons that gave rise to mesons and hadrons; leptons like electrons and positrons probably in equal numbers; and other bosons, field carriers like photons, Ws and Zs, just as we believe we have detected in particle accelerators when energetic electrons annihilate upon colliding with positrons. But the density is so high, the mean-free path of particles is so small, that no radiation can come out, no light can escape. As this ball of elementary particle expands and cools, the density drops and eventually photons emerge, and we see these first photons as the cosmic microwave background, well studied and measured. We are still very far from the formation of hydrogen, from which will form the first molecular clouds, from which will form the first stars that will forge helium and the heavier elements, from which will eventually form molecules .

Sound, a pressure gradient, can propagate in gases, liquids or solids. So, in fact, as long as there is something, whether it is air or a dense ball of elementary particles, sound can propagate and is not subject to continual absorption and re-emission as are photons. However, the speed of the propagation depends on the properties of the medium: the ratio of the stiffness to the density, and how can know the stiffness or density of a state of matter that only exists in our imagination, and to complicate matters further, is expanding at prodigious rate whose magnitude we cannot realistically estimate?

Well, that's it for me.
In 2008 Sarah Cook was the inaugural curatorial fellow at Eyebeam NYC through a partnership with CRUMB (www.crumbweb.org), the UK-based online resource for curators of new media art, at the University of Sunderland, where she is a post-doctoral research fellow. Sarah has been curating and co-curating exhibitions of new media art in North America and Europe for the past 10 years.
In 2004 I participated in a summit on the topic of re-enactment at the Banff New Media Institute subtitled Modeling the Unseen. Over three days scientists and artists together discussed the pitfalls of using techniques of computer simulation to understand both the lived world and theoretical worlds, from the divergent accounts of the first ascent of Mount Everest to an imagined collision between two galaxies. It was repeatedly mentioned that simulation – the computer modelling of phenomena, whether from data gathered through observed or parameters hypothesised – requires that researchers build mental and then virtual models and furthermore, that the methods and tools used in the myriad processes of building have their own significance. For instance, building a representation of the solar system with painted potatoes strung on wires is very different from building a representation of the solar system with pictures printed out from the web. If you are to simulate your original “object” order to better study it – be it a solar system, a set of data collected about the food web present on a coral reef, or an historical battle from descriptions collected by historians – then you have to, by necessity, become engaged in a process of translation, from data to picture, object to screen. But through the process of simulation, a new object is created, digital or not – the simulation itself. And yet that new object is but a representation of the original, an original which can’t be known. So can simulations or models stand in or substitute for reality? And as the summit organiser, Sara Diamond, asked at the time, if simulation provides a means to discovery, does it change the very substance of what is discovered?

For artists, this is the stuff of life. Concerned with representation, of the imagined, of lived experience, of the world, this is exactly the field they truck in. The main character in Charlie Kaufman’s film Synecdoche New York, Caden Cotard, spends his every day trying to recreate, in real time and space, at actual scale, the minutae of everyday existence – the passing conversations and the traumatic encounters between people. The protagonist in Tom McCarthy’s novel Remainder also tries to re-enact scenes from his life before his traumatic head injury, rebuilding his entire apartment block just to relive an encounter in a stairwell with a neighbour taking out her garbage. Artists, novelists, dramaturges and filmmakers recognise that in their activity of constant simulation, there is a certain amount of loss or failure which is unavoidable, which is built in to their endeavour, and they can live with that, even exploit it to position their own view. For scientists, who seek to uncover the truth in the world, this potential failure to represent can be more nagging.
Right now, NASA’s Phoenix Lander is entombed in dry ice on Mars. We have lost communication with it. Jamie O’Shea has been building small shrines to the transmissions of the robotic probes on the surface of Mars for a few years now. His latest telematic shrine is a toaster inside a freezer, with a humidifier attached with timers. The toaster lander sits on top of an exact replica of the Dodo-Goldilocks trench dug by Phoenix, where the presence of water on Mars was confirmed. For the duration of the summer here on Earth you can watch O’Shea’s webcam as it updates with a new live image every 12.5 minutes (the time it takes light to travel from Mars to Earth) and see the latest shrine to the ‘martyred lander’ also become slowly encased in ice crystals just as the actual Phoenix Lander is. When NASA’s Lander thaws in the Martian spring in October, it may come back online. If it does, its signal transmitted back to Earth will turn the toaster on, and melt it free. We await future transmissions.
Jayanne English
– Cosmic Sites: Remote Space And Personal Perception Meet At The Monitor

Jayanne English is associate professor in the Department of Physics and Astronomy at the University of Manitoba, Winnipeg, Canada. She has a Ph.D. from Australian National University. Her research concerns galaxy structure and evolution. Additionally she creates astronomy images. In 1998-2000 she coordinated the Hubble Heritage Team of image-makers at the Space Telescope Science Institute which works collaboratively to decide on the final form of images from the data gathered by the Hubble Space Telescope. In 2006 she won First Prize in the (American) National Radio Astronomy Observatory Image Contest for an image of cold hydrogen gas in the Milky Way.
To picture the universe when it was young, imagine a stormy sea of particles, smaller than atoms, colliding with each other. This plasma, on the whole, radiates more light than it swallows or absorbs. But it is the waves in this cosmic sea that have the most profound impact on the future of the universe. These waves provide the conditions necessary for the growth of galaxies. And galaxies, as the habitats of stars and their orbiting planets, constrain the development of living organisms like ourselves. Recently the European Space Agency’s Planck satellite was launched to study the fundamental origins of structure in our universe - that is, those waves in the cosmic plasma. Previous observations detected these waves as miniscule fluctuations in temperature in the light escaping from the primordial sea of particles known as the Cosmic Microwave Background Radiation (CMBR). This pervasive radiation keeps the empty space of the universe at 2.725 degrees above absolute zero. The fluctuations differ in amplitude from this temperature by a mere 1/10000 of a degree.

These primordial cosmic waves cannot be touched, tasted or heard. Rather we experience them, like almost all astronomical phenomena, by the electromagnetic radiation that they emit. We apprehend their characteristics and behaviour by analyzing their light. This makes vision our primary sense in astronomical studies. Radio, microwave, infrared, and X-ray telescopes extend our vision beyond the range of visual light, giving us access to these other parts of the electromagnetic spectrum. Captured in bits and bytes by electronic detectors and converted into data, the challenge is to render these photons so that we human beings can grasp the essence of the physical phenomena that we are investigating. The computer monitor facilitates this, embodying our exploration by engaging our faculty of sight. That is, we do not learn about the universe by merely thinking about it. Rather we employ our body, our eye-brain vision system in particular, in order to perceive physical facts, develop classifications, delineate concepts, and contrast metaphors.

More specifically, the astrophysicists' renderings and investigations of the minutiae, called anisotropies, in the CMBR are manifest in text, equations and images, all displayed, manipulated and viewed on the computer monitor. Thus the monitor acts as an interface between 2 vast realms, one external and one internal. The external realm consists of the space-time dimensions of outer space and contains all the matter, energy, and physical phenomena within the universe. The other realm is the domain of the mind and the human capacity for reason, understanding and imagination. This interface is used to its full capacity when the monitor, like a telescope, extends the human vision system, displaying images created from the collected data. These images can be very naive, often reducing to contour plots, and rarely are they poetic. This is because for most of the electromagnetic spectrum, including the microwave region, defining what your eyes see as „believable“ or „truth“ would be meaningless. Instead images constructed from data, such as that acquired by Planck, are representations of measurable physical truths, such as variations in temperature and the dimensions of structures.

Extracting the measurements of the original temperature structure in the CMBR, those initial waves in the cosmic plasma, is, however, a severe challenge. The data collected by the satellite are very complex, entwining together time, distance, and motion. Since light travels at a measured finite speed, its progress is not instantaneous. The more distant an object, the longer it takes the light it emits to travel to our telescopes. Since Planck simultaneously observes structure from the nearby universe and light from the distant universe, its data contains temperature fluctuations from both the recent era of our existence and from our primordial past. Thus the raw images of the CMBR are, like the computer monitor, an interface for 2 other vast realms. In order to investigate the cosmic waves this interface between the current universe and the past universe needs to be scrutinized and assessed. Specifically the signals in the data from the radiation emitted by structures in our proximity need to be determined and removed before we can analyze patterns that strictly exist in the CMBR all with a view to understand the
conditions which were in place shortly after the birth of space and time.

One of the nearby structures that is convolved (or in other words entwined) into the CMBR data, and which could significantly impact our interpretation of Planck's observations, is our own Milky Way Galaxy. The filaments and clouds of cool hydrogen gas in our relatively local environment will generate some microwave, as well as radio, radiation. While historic surveys indicated little gas exists in the halo above the disk of our spiral Galaxy, those observations were like brief glimpses compared to Planck's deep, probing stare. Faint gas could be detected if longer observing times were used. However how can the Milky Way gas be isolated from more distant objects containing gas? The solution is to observe the motion of the gas. Our Galaxy rotates, has fountain-like outflows, and accreting gas clouds. While their speeds are hundreds of kilometres per second, this is much less than the thousands of kilometres per second recessional velocity of other galaxies.

Radio telescopes can capture motion. Consider your television monitor which for each frequency (channel) presents images from a different broadcasting station. Similarly, a radio telescope for each frequency (channel) receives a different image, though in this case all images are associated with a specified position on the sky and each channel is associated with a specific velocity. The resulting data is, instead of a single 2-D picture, a cube which is a stack of images for a range of velocities. This cube must be rendered on the computer monitor in order to detect continuous, related structures and to make measurements of their physical aspects. While a cube could be printed out channel by channel onto sheets of paper, as in Fig. 1, this does not generate the more significant comprehension of the phenomena that occurs during the manipulation of the data by software interfaces that can rotate, tip, slice, and vary the brightness of the cube when it is displayed on the computer. The right-hand-side of Fig. 2 shows a screen-shot of a data cube rotated and tipped using KARMA visualization software.

The animation for this article also provides an illustration of a data cube. The cube was acquired, by A. Russ Taylor (University of Calgary) and his team, in order to determine how significantly the Planck observations will be effected by any faint gas in the Milky Way. They used the Dominion Radio Astrophysical Observatory's (DRAO) Synthesis Telescope to examine an apparently empty part of the Galactic halo, discovering faint, diffuse cold gas structures which could generate microwave radiation. Each frame in the animation that displays these „ribbons“ of gas represents a different velocity within the few hundred kilometre per second range associated with our Galaxy.

For this animation, I have assigned the initially black and white data a set of colours - a few examples of the black and white channels are in Fig. 1. My colour selection is a metaphor for the Doppler shift; it is a fact that the colour (or peak wavelength) of light emitted by gas flowing towards a viewer will shift towards the blue end of the electromagnetic spectrum while light emission from receding gas shifts towards the red end. Of course the eye-brain vision system perceives these colours in the opposite sense: blue appears to recede into the background of an image and red appears to jump to the foreground. In the animation I retain the scientific colour legend (e.g. blue moves towards the viewer) but adapt the selected colour in an attempt to also visually support the legend. For example, in the most blue-shifted frame I’ve selected a light, warm blue (cyan) in order to use warmth and a light-dark contrast to give the sense that this gas approaches the viewer. I have split red into magenta and yellow, assigning dull yellow to the most red-shifted emission to indicate that the preceding magenta frame is more blue-shifted. If the ribbon of gas was flowing in one direction, the colour would smoothly transition across the front face of the cube in that direction as the animation advanced, creating a rainbow-like band that steps from pale cyan to blue through magenta to orange. Instead what we see here is that each colour is spread across the cube’s face. As such we can apprehend that the gas is in
turbulent motion rather than flowing. Finally there is a frame with „dots“. These are energetic, young, active galaxies too distant to be resolved into their disk or elliptical shapes. They were captured by the DRAO Telescope at the same time as it observed the velocity data. Their inclusion turns this animation into a metaphor for the blending of distance and proximity at an interface. The metaphor is even more strongly emphasized in the 2-D image of the animation in Fig. 3 where the stacked images in the cube have been merged into a single 2-D image, entangling the distant active galaxies and the local gas, the past with the recent.

The image and animation are unfamiliar and abstract to the viewer, who may clutch at Rorschach-like visions of spooks in order to attach meaning to this material. However what is more important is the meaning of this dataset to explorations of our host Galaxy and our assessment of the CMBR. Since these images do not have structures than can instantly be categorized like, say, remnants of exploding stars, the loops of solar flares, or the swirling clouds on Jupiter, we must apply some effort to digest their contribution to the stable, scientific facts constituting the framework of our understanding of the universe. And at this point in human history it is the computer and its monitor that facilitate the transformation of these colourful ink-splotches into physical objects that can be classified.

Unlike the printed page, the image on the monitor is maleable. Different grayscales can be applied, colour contrasts implemented, and perspectives redrawn, all in real time. The printed page can be held and viewed, but the image on the computer offers an opportunity to use our bodies more fully, engaging our hand on the mouse as well as our eye-brain vision system when we manipulate the data using various software packages that display these data. George Lakoff and Mark Johnson (Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought, 1999) in their description of the philosophy of „embodied realism“ point out that much thought is completely inaccessible to direct conscious introspection and that reason is necessarily tied to our bodies since it develops out of our perceptions and manipulations of our environment. If our understanding of reality is largely created by our cognitive unconscious then exploiting the peculiarities of our human eye-brain vision system, that is, extending its capacities beyond the telescope via display software, becomes beneficial. Perceiving data on the monitor allows us to interface with, and engage, our vast inner space, the part of our mind from which concepts, metaphors and categories percolate toward consciousness.

Lakoff and Johnson also point out that scientific categories formed by the human mind can accurately match divisions of things in the world, resulting in stable scientific knowledge. From my perspective, the technologies that extend our embodied perceptions not only extend the range of categories available to fit phenomena in the real world, but facilitate significant changes in our perceptions, conceptions, and classifications. This engagement allows us to aim for unexplored territory and experience the counter-intuitive. For example, before photographic film existed it was not known that hot stars were blue-ish while cool stars were red; intuition suggested that stars should all be white. Photography has been replaced by the computer monitor which provides the interface between the vast external realm of astronomical data and our minds by being the site of our physiological experience during the process of exploring the cosmos. In the example of the radio telescope dataset above, this interface has allowed us to discover unexpected gas and categorize it as „relatively local“ and turbulent in motion. Astronomers can now use these characteristics to remove the impact of local structures from the signal of the distant cosmic waves in the CMBR observed by the Planck satellite. Continuing to employ the monitor they will use Planck’s data to assess the uncertainties in acceleration of the universe’s expansion, test whether the universe’s scale inflated drastically during an era near the beginning of time, and attempt to grasp the natures of dark matter and dark energy.
Martin Brauen – Translate Words Into Pictures. Kalachakra Mandala

Martin Brauen is the chief curator of the Rubin Museum for Himalayan Arts in New York
Tibetan Buddhism utilizes images with an intensity like no other form of Buddhism or any other religion in order to communicate the deepest religious truths. Since these images often show deficiencies, even mistakes, when they are compared to their subjacent texts, and because there are often only written description of these visualizations, the Ethnographic Museum at the University of Zürich has attempted to translate semantic language into pictorial language with the help of the latest computer technology. The following text is an appeal for pictorial translation - even in the humanities.

Why is there never a single illustration, graphic or photograph in countless books and articles about psychology, history, linguistics, religion, etc.? How come budding academics are indeed able to use words sophisticatedly, but never learn to express themselves in pictures or to write texts in pictures, even when a graphic representation is explicitly called for: for example, when describing and analyzing spatial features? Why are pictures so seldom used in the different sciences as a means of expression for facts, relationships and results?

There is a simple answer to these questions: the reason is that in the academic world - especially in the arts and social sciences - the written word is everything and the picture counts for little, even nothing. According to the widespread belief, only the written word is the incorruptible conveyor of truth; the picture belongs to a mythical and primitive time, an age before reason, and is unreliable and imprecise - this is a false idea, and one which the research discussed here refutes.

Rich pictorial language of Tibetan Buddhism

The Tibetan version of Buddhism works closely with meditation methods, in which visualizations - pictorial creations of deities and symbols - play a central role. These visualizations are indeed described in great detail in texts but they are difficult to represent as, or rather translate into, images because of the written (or spoken) nature of the texts, since it often concerns very complex forms.

The Tibetans began early on to produce pictorial representations of such visualizations; however, these displayed inadequacies - despite masterful abilities on the whole: visualizations are the products of consciousness; they are spiritual creations but the colors and materials used to depict the visualizations belong to the material world. How could a transparent body that is shimmering in all the colors of the rainbow be copied by using traditional materials?

At first glance, many academic publications seem to consider the pictorial world of Tibetan Buddhism to an appropriate extent. Yet on closer inspection of these works, one realises, however, that although the Tibetan images are described in the minutest detail in them - which figures are visible, which emblems these contain, which colors they use, etc. - the structure, the „grammar“ of this Tibetan visual code is actually analyzed only in extremely few cases to establish a specific world view and individual perspective as the basis of the Tibetan images.

Translating pictures with the computer

In the past few years, I, along with computer specialists, have begun to decode the pictorial world of Tibetan Buddhism and translate the pictorial descriptions into academic images. Tibetan written and oral descriptions as well as traditional images from the Kalachakra-Tantra tradition formed the concrete basis of my research.

Whilst comparing the written Tibetan sources with Tibetan and Western renderings of the images, I discovered many discrepancies and „translation errors“. Also, it became apparent just how difficult - even impossible at times - it was to accurately imagine, visualize a complex, spatial object after reading a description of it. For this reason, we decided to draw the written and, in part, oral descrip-
tions of the mandala and the cosmos as per the Kalachakra tradition by utilizing a CAD program, which allowed three-dimensional drawings. The results were true-to-scale models of the cosmos and the mandala palace. Models, which were by far superior to the linguistic descriptions: the many image parts with countless details with regard to sizes, distances, line shapes, surfaces and bodies combined to form one extremely multi-faceted overall picture, which could be disassembled into any number of parts as desired - at the touch of a button.

A further important advantage of using 3-D computer images was that the pictures led at times to new discoveries and information, which were not identifiable from reading the text. This was the case above all when the correlations mentioned in the text between the cosmos, man and the mandala palace were analyzed and suddenly showed new correlations, which were not described in the texts (see illustrations 8 and 9), or if an angle was chosen, which was not mentioned in the texts.

Refining the translated images

The initial rendering in pictorial terms also showed deficiencies, since the software at the time only allowed for a sort of rough sketch, i.e. wire frame model drawings. In the second phase, Peter Hassler reprocessed the data of the first generation using Autodesk 3-D Studio (Version 3.0) as well as further graphics programs: we adjusted colors, brightness and saturation, transparency levels, and some other parameters for individual objects to create a virtual illumination with several light sources and positioned - again virtually - a camera in this fictitious cosmos.

In a third step, the new data was prepared as a computer animation, which meant the spatial relationships in the cosmos, between the cosmos and the mandala and within the mandala palace could be understood better than with an oral or written description.

First, the animation shows the Kalachakra cosmos from above. The 12 wind planes, which the planets follow, are clearly visible (illustrations 1, 2, 5). The camera, or rather the observing individual, moves circularly around the cosmos (illustration 5), approaches the southern continent of Jambudvīpa and lands. It looks up and sees the planetary orbits and then climbs up to Mount Meru, moves up the mountain’s face until it is exactly above the center of Mount Meru. The camera then quickly approaches the center of the rounded surface of the mountain, where the Kalchakra-Mandala is located (illustration 3). A three-dimensional mandala palace grows out of the two-dimensional mandala and there is a transparent Vajara protective dome around it (illustration 6). Whilst the palace rotates on its own axis, a person and a model of the Kalachakra cosmos blend into the middle of the palace showing the correlation between man (inner mandala), the universe (outer mandala) and the mandala palace (illustration 9).

Neither words nor pictures

At the end of the virtual journey through the cosmos, you approach the palace and end up - via the body and linguistic area - in the center of the spiritual area of the palace, where Kalachakra and Visvamata are standing; they disappear at the end - into the empty void, where neither words nor pictures exist...
III. 6:
Computer drawing of the mandala palace, which is screened off from the outside world by a transparent Vajra protective dome.

III. 7:
The palace from a different perspective. It is possible to see the transparent, rainbow-glimmering walls, which are mentioned in the text and show delicate filigree adomments on the upper side.

III. 8:
Computer drawing (cross-section of the mandala palace) from the first generation...
Alan Sondheim
– Second Life
Installation
Phenomenology

Alan Sondheim is a poet, artist and theorist who lectures and publishes widely on contemporary art and Internet issues. He lives in Brooklyn, New York.
The Second Life show at http://slurl.com/secondlife/Odyssey/48/12/22 continues to change; since it’s complex and interactive, it makes sense for you to visit it. Images and videos can present one or another new (static or dynamic) topographic feature, but only in an isolated and framed configuration; one doesn’t get a sense of the roll or negotiated pathways of the spaces which are always under construction.

At one point symmetries dominated, as well as moire patterns related to early cinema; at another, flat black areas created a problematic of depth that remained unresolved. At times a machine-structure (gears, wheels, cams) appeared out of partial assemblages; at best, these were metaphors, doing nothing in the virtual or the real. In the exhibition, objects tend to ignore one another unless given physical weight; few objects have that, since those that do tend to tumble out of the exhibition, 'out of world,' ending up in lost-and-found inventories.

Now the symmetries have corroded by 'foreign' non-repetitive textures that indicate movement trajectories (it’s easy to follow the movement of a flat black square for example) and block moire effects. It’s as if the symmetrical properties of objects and assemblages are falling apart. Almost every object moves vertically; some are aligned, some are harmonic, some appear independent. It’s easy to fall vertically at this point, from sky objects to the exhibition hall surface, and from ground surface to the underwater environment beneath the hall. Teleport labels may or may not take you somewhere; you might end up where you started or even more entangled on a different level. The environment as a whole appears as shaky as the economy, and there’s a parallel with bandwidth and prim quantity issues. I build and don’t know who sees what; I find my own computers locked up on occasion.

At this point I want to start radically modifying the installation; again I urge you to visit while it retains a semblance of its current state. As objects are given weight, they’ll fall and reorganize the surface; they may well pile up without falling out of world, at least temporarily; they may provide new surfaces and cavities to negotiate. It’s almost impossible to document the dynamics of this; things fall too fast for cameras to follow.

When I sleep at night, spaces open up; I’m torn and brought close to death in nightmare after nightmare, some of which are set in apparently real environments that slough off into the virtual. A train begins here, the tracks connect there, leading to dilapidated and jumbled architecture. Or arousal which disseminates in the midst of prims sharp enough to slice through site and sound. From Dhananjaya: „'Rasa is that which is made enjoyable by the behaviour of the characters that gives enjoyment because the object of the drama is not to enjoy the behaviour of the characters since that belongs to the past.' (Otherwise, says the author, the spectator might as well himself fall into love with the heroine.“ And again: „'The spectators enjoy at the site of characters like Arjuna and others what they themselves feel inside just as children enjoy, playing with clay elephants, the fervour that is within themselves." (From Adya Rangacharya, Drama in Sanskrit Literature, Bombay, Popular Prakashan, 1968.) Enjoyment is not enjoyment in the sense of pleasure, but inhabiting a diegetic constructed through a series of coded interfaces. In the Second Life installation, the strange remains strange, but one learns to negotiate complex trajectories among levels, prims, sounds, spaces, worlds; soon rasa (flavor among other meanings) emerges as one’s eyes are one’s avatar’s eyes and one becomes comfortable with hir body. There are no identifications in the Second Life show, only corners, plateaus, and circulations that permit discourse, that one might conceivably inhabit. All of these
spaces, like capital, are rickety; Second Life is governed by exchange, not use value and things constantly threaten to fall apart. The only certainty is an absence of breakage and death; what is attached for the most part remains attached, no matter how far it falls, no matter how sharp and difficult, impossible, the landing. Death in Second Life is never death, but literally a passing-away; an avatar disappears more or less permanently and one might assume that something has occurred in real life parallel to this - illness or death or disinterest or bankruptcy - one never knows.

The spaces in exhibition are malleable, not liquid, not liquid architecture so much as capable of distortion and linkage at a distance: things may well move in synchronization, even over a fairly large distance, as if Bell's theorem suddenly appeared in the large and abstract. When the space - the normative space of Second Life - fills up, it transforms the avatar within it. Boundaries are no longer fixed or even apparent. I imagine a Kristevan chora, part-objects and pre-linguistics driving the show, as if the birth of language were imminent and immanent. The birth never occurs; the chora remains at the state of the laugh or scream or orgasm or even free-fall. One is stripped down, and the images, such as they are, texturing the prims are often sexualized - penises, breasts, rings, faces in pain or ecstasy, posed mannequins of fossilized desire and dance. One senses an alien choreography behind everything, the world inverted in Plato's cave from virtual shadows to the watching and participating body on the damp floor. The alien is ourselves of course and the aliens are our self, chora to chiasm.

Rasa is the taste of this, the taste or flavor of the enlightened audience which means the knowledgeable audience, who have already migrated past the strangeness of the exhibition towards an inhering organic that passes for flesh and tissue. I think of the space as avatar body, as avatar herself, as chora, as womb, as phallus, as adverb. I think of rocketing through the space as the dissipation of vectors without origin and destination; one lands in the midst of circulation and circles herself.

But all of this takes time on the part of the visitor, as does the reading of signs, even the writing and writhing of signs in sky and water and within the earth itself. One has to enter the space, ascend and descend, allow oneself to be caught up in the multiplicity of worlds, even the smoke of catastrophe and catastrophic industrialization, the destruction of families, speech and phenomena which are always already in a state of withdrawal. The world comes and goes without saying; we pass away as it passes by, and even a minute after our death we no longer hear a voice, see the sun, read the next day's market.
Art contribution

Alan Sondheim
– The Nowhere Dance – a Second Life Performance

Alan Sondheim: We teleported people into an installation which has been constructed over a period of eight months. It represents nothing of architecture, fantasy, or surrealism; it’s a space unlike anything in the real world. It’s difficult to move through, a field of alien processes which has a life of its own. Sandy Baldwin and I will dance through and around it - on the ground, in the air, and on the ocean floor. Part of the dance will be based on learning to move around; part will be based on adding to the clutter.

This may well be the first time that an extended phenomenology of a virtual world has been attempted; the installation has changed almost daily for a period of eight months.

Date of the performance: Feb 11 / Wednesday 2009
US West Coast Time: 8 AM
US East Coast Time: 11 AM
Great Britain: 4 PM
Central European Time: 5 PM
Mumbai, Bangalore: 9.30 PM
Shanghai, Beijing: 12 PM
Tokio: 1 AM
As a contribution to the online project beam me up, Marc Lee wrote software for the search engine Pic-me.com, which combs the Internet for people's names and puts together new personal profiles from their associated details. Hybrid characters are created, who at first appear to exist close to this side of reality, and then seem to be pure constructs: crossbreeds of totally unfamiliar identities. Search engines for people in the digital beyond are invention machines, yet it is not easy to distinguish between the constructed figures there and us living people here.

The Pic-me software machine constructs new people-portraits, creations of an identity combined of the sum total of Internet data associated with a specific first and second name, country and city. Statistics show that giving one's own name in a search engine is one of the favorite search actions on the Internet. It's known as egogoogling or ego search. People often do it out of curiosity to discover their own Internet presence - in English it's called vanity surfing. But it can also be a way to control one's own image on the Net, how one is presented to potential partners or employers.

It's impossible for search engines to produce a person's portrait precisely. No name is unique, and therefore there will always be an intermingling of data from several people with the same name. What results are distorted figures, blurred reflections, which can even be hurtful if we happen to be their subject. Because for
some people, just a few schizoid traits are needed to bring on existential irritation. Simply seeing their name with the wrong portrait shot and wrong age brings on a feeling of queasiness. Pic-me.com therefore creates fictive figures, patchworks from names, faces and life stories from all kinds of cyberspace presence.

Marc Lee describes the political aspects of his work thus: my work should illustrate the importance that clarifying, and therefore political, functions of self-operating interactions on the Net have in an information society. Behind Pic-me lies the belief that only through a systematic unfolding and the parasitic use of its astoundingly easily manipulable structures can the Internet be meaningfully criticized. It’s Pic-me’s job to take a peek behind the pretty illusion of the desktop, to make visible the mysterious streams of information which delve deep into our lives.
Urban sites are visited by a figure, dressed in a camouflage suit, who shows neither the traits of an individual, or even of a person. The so-called 'Ghillie Suit' was originally invented in the 19th century for hunting and that was later also used during the First World War. Its camouflage effects the anonymisation and the neutralisation of the person who wears it in public. macghillie, a -prefer not to- figur, an actor without identity, transforming past and future into here and now, oscillating between the hyperpresence of a mask, and visual redundancy. It traverses the modern urban environment in which conspicuity holds ambivalent currency, wavering between cumbersome affirmation and visual arbitrariness. It is a variation of types like 'Bloom', 'Bartleby', or the 'man without qualities', which have transgressed their original literary existence and have become the tropes of philosophical debates around the postmodern politics of subjectivity.

The ongoing project consists of 3 parts:

- macghillie speaking, withdrawing from self. voices materialise and self oscillate in a physical space, the coordinates are real, but unknown. the permanent audio sphere can be accessed live online.
- macghillie here, there, anywhere. urban remnants.
- free access to macghillie-suits in different towns, become macghillie!
The waves of the sea are a reflection of our mood: there are days when we can describe with shining eyes how different each one of them can be. And there are times when all of them look identical to our eyes, quite as though Mother Nature's mood has seen to it that the same spray of surf on a beach in the Pacific or Indian Ocean splatters the very next moment over the coast of Senegal. Hektor Maille felt, at that moment that he too was made up of a fluid consistency, a capricious organism flowing swiftly through time and space. Here a moment, there a moment. At one moment he felt as though he was in his summery garden in Senpauv, sitting by the salad patch and smelling the lopop being roasted in the kitchen by Odette for her magnificent mango-and-shrimp cocktail. At another, just a couple of Happy Gourmet Sky meals later, he was standing on the corniche of the Dakar coast and staring out at the isle of Goree, where a local agent by the name of Ross had located a radio signal that had emanated from the wristwatch of the vanished physicist. (Dakar, Route de la Corniche Est / Secret Service in Senegal, Episode 2 / Szene 1)

Among the most famous recipes of Senegal is «Poulet Yassa», which is supposed to have originated in the tropical Casamance region in the southern part of the country. Maille decided to prepare a bovine version of the classic marinated-in-lemon free-range chicken with onions (see the recipe). He chopped the meat into large pieces, sliced the onions into thick rings and doused both with the juice of a
couple of lemons. While he hacked the garlic, Souadou stepped into the kitchen and offered him a glass with French mustard in it – with a faint smile playing on her lips. One did not quite know whether the smile signified mere amusement or amused mockery. The mustard was from «Maille». That, however, was not the reason for her smile. No, Souadou was highly tickled that an eccentric visitor was cooking for her guests – a first-time experience for the restaurateur. Perhaps he was a nice fellow, she thought, even if he was a tad too serious and too nervous for the Dakar climate. (Dakar, kitchen of the «Keur Souadou» / Secret Service in Senegal, Episode 2 / Scene 17)

Sometimes things slip so fast out of one's hands that one can regain a semblance of control only when one is in the bathtub. In the suds one takes a deep breath and turns akin to a tadpole that sinks gradually to the bottom of the pond. The world is hardly to be heard or to be seen through the foam – one smells nothing, one feels at once leaden and weightless. But then one needs to come up for air, and is forced to return to the world above the gills. Like an air bubble, one rises to the surface, shooting out of the foam and gasping over and over again at the unfolding drama of evolution – that transforms the smug tadpole into a sullen frog, which lands directly in the beak of the stork or, if it is lucky, at least on the meat platter of French cuisine. Even after his rather reluctant metamorphosis in his hotel «Banna», under the foam, which smelled like a shower room stuffed with tennis players, Maille found himself back in Moscow – naturally, because one could not get out of it so easily. (Moscow, Hotel «Banna» / Ballad in Moscow, Episode 3 / Scene 6)

Anyone who travels into the morning from, for instance, Europe to China, takes just a part of himself along. One is present – respectively, one is there – one is oneself, and one is also another self – one is, as it were, in the future. While a part of oneself in the Far East is awake and is capable of having the most alert discussions, another part is fast asleep at home in a Parisian bed – and vice versa. During the day one hardly notices that one is a couple of steps ahead of oneself. In the night, however, one is visited by dreams, dreams of another self, as it were: personal dreams, yet dreams that are made up of a vastly different constellation, another timbre, almost as though one has unexpectedly landed within the body of a twin brother. This feeling, however, fades a little bit with every day that one spends in the Far East. The past probably catches up with the future, or then one gets accustomed to being another self. (Peking, Beihai-Park / Wallgames in Beijing, Episode 4 / Scene 1)

«Wrigleys» belonged to the vocabulary of a language, which Maille called the global idiom of the branded product. In those quarters of the world in which one could not get by with French, English or Spanish, the global language of the brand helped one to get something of the atmosphere, to generate the correct currents of thoughts – and, as such, «Cola» stood for thirst, «Nike» for sport on clean streets, «Mercedes» for politics, «BMW» for unabashed business, «Sony» for party, «Starbucks» for a place where one can sit, and «Mc Donalds» («Mai Dong Lao») for clean toilets. The idiom was useful, even if Maître Seugrem, Maille’s old school-friend and favourite butcher, contemptuously dismissed it as the «Esperanto of the ‹Mars›-devourers» and, while rolling his eyes and drawing a big circle in the air with his leg of lamb, therefore also prophesied «the return of the mind–‹Snickers›.» (Peking, East 6th Ring Road / Wallgames in Beijing, Episode 4 / Scene 4)

As always he had introduced himself as a culinary inspector from Santa Lemusa. A trademark that allowed for diverse interpretations – as such Maille considered himself as a mixture of food critic, hygiene inspector and peripatetic researcher in the subject of nutrition. The camouflage was practical – and covered up Maille's secret melancholia because instead of keeping vigil over a criminal from São Paolo, he had often preferred to test the temperature of a poulard from Bresse. At Ren Zilins, the discussion was inevitably about food, local specialities, prices,
products and work at the stove… and naturally Maille always had many questions about the items served to him – so many that he occasionally landed up in the kitchen, where the gracious owner personally brought forth a pinch of something or the other. Not for nothing was one a spy. (Peking, Restaurant of Ren Zilin / Wallgames in Beijing, Episode 4 / Scene 16)

Strangely, it is not airports themselves that provoke in us the feeling that we are being hurtled through time and space. Perhaps that’s because all airports look similar – so one is at once always there and away. Perhaps it is the nervous tension, the hustle and bustle of the place that alters our perception and prevents us from recognising the exact situation in which we find ourselves. In an airport one is a neutral entity with a destination but no orientation, no Pole – a transport assignment defined by ticket number, flight timing and baggage tag. (Stockholm, Arlanda Airport / From Sweden with Lilies, Episode 5 / Scene 1)

Only when one leaves the airport behind does the moment come when one remembers that one’s existence is always defined by geography; that it makes a difference whether one drives in a taxi through the streets of Beijing or rides on a boat through the waters of the Black Sea. It is at this moment that one’s own situation seems almost implausible, as if it is not yet entirely embedded in the present – and even if one is aware of where one is, one is not really there, not yet. Perhaps this light absence is nothing but the attempt to create a place for the gaps in time and space – a sort opening in which all things have their place, things that one does not understand or has missed out flying with time or against it. (Stockholm Archipelago / Seerosengrüsse aus Schweden, Episode 5 / Scene 2)

After the meal, he took out from his bag a bottle of red wine that he had mindfully bought at a «Systembolaget», a state-run alcohol shop at the main station in Stockholm. After a couple of sips, he reached for the «Kanelbullar». It smelled not just of cinnamon, which its name led one to expect, but also clearly of cardamom, a spice he found rarely on his travels in Europe. For a moment Maille felt as though he was back in his homeland, where Kap, as Elettaria cardamomum was called on the island, was never missing from any kitchen. At this moment it would not have disturbed him in the least to sit in his garden in Senpuav. These were kitschy thoughts – and Maille felt as though he had fallen headlong for the rapturous promises of a cookbook. Nevertheless, he closed his eyes and rolled the «Kanelbullar» between his teeth and his gums – if he concentrated on the aroma, perhaps he would feel a bit as if he were on Santa Lemusa. As he tried to feel the north breeze blowing from Mount Majorin on his skin, he asked himself in which adventurous way a spice like cardamom could have found its way from his homeland into this traditional Swedish roll. He got the peculiar feeling that this question was important – but he had no inkling why. (Stockholm Archipelago, Bullerö / Seerosengrüsse aus Schweden, Episode 5 / Scene 11)

Often, what a secret agent does is quite meaningless. He flies through half the world, follows the vaguest of clues, meets all manner of informers – only to end up discovering that the spurs often lead to nothing, the guides are pipsqueaks or braggarts, and the great search ends in a small worry about the exotic pathogens that one could have exposed oneself to by drinking water at the fountain in a local temple.

For real tourists there are travel guidebooks that describe in minute detail exactly what they must experience in order to have a successful time in this or that land: climbing the Eiffel Tower, purchasing a carpet behind the Blue Mosque, relishing a strudel in «Griensteidl», taking a camel ride through Palmyra, eating Peking Duck at «Quanjude» and, not least, tribal dancing on the stage of the «Sheraton» (with great penis-circles).

Like tourists, secret agents are also basically seekers of meaning – the difference being that they often slip inexorably into innumerable forms of existence. Then they circle around their own bodies, worried by any scratches on the surface, like espionage satellites over one’s proper sensitivity. (Busan, Beomeosa /Through
After the meal which is, as is often the case in Asian restaurants, gone by in a flash, Maille wandered through downtown Gwangju: shoe shops and fast food joints, telephone booths, cosmetic stores, bon-bon bazaars and Cappuccino meeting points, pulsating rhythms and the smell of pastries baked in fat – like everywhere in the world. Young families, girls with naked, terribly white limbs, skinny, shy boys greedily puffing cigarette smoke into their skinny bodies, almost as if they wanted it to pave a path for them in real life. Among them were a few weather-beaten faces, probably farmers, selling apples, boiled corn and candied octopus or piling paperboxes onto rusty handcarts. There were no tourists around here. Maille noticed the looks he received with every step he took. They were neither hostile nor dangerous, just a quick once-over that could make one feel like a giant-eared weasel in a zoo – a being that God’s mighty force had turned into a unique entity. Here, there were children who stared at him as though he had fallen out of a television – and girls who looked through their seductive eyelashes at the foreigner, giggling, elated by the tiny triumph of receiving a glance in return. Only the old people looked through him, perhaps on account of their Confucian reserve, or because they assumed that he had no interest in candied octopus. (Gwangju, Downtown» / Through Korea on the Cabbage Route, Episode 6 / Scene 5)

Maille felt lonesome and alien – but he was peculiarly familiar with this feeling. Over the years of travelling on assignment in service of the Republic of Santa Lemusa, this feeling of being alien had increasingly become a form of home, like a unique landless nationality – quite as if one felt connected with a place where there was nothing, a reference without an object. Questions about his origins, Maille sometimes wished to answer as if it could be a simple matter-of-factly: «From abroad» – quite as if «abroad» was a concrete place, such as a vaguely known star. Sometimes he thought of inventing a land – one that one could be incredibly proud of and never be disappointed in. Santa Lemusa was certainly not the badest spot on earth, but there must surely be better places. Mostly it was the inner-existence, with its rules and automatism, its repetitions and implicitness that demoralised one. Why shouldn’t one want to come from a land that is seen only from the outer perspective: from a foreign land without an inland? (Gwangju, Downtown» / Through Korea on the Cabbage Route, Episode 6 / Scene 6)
The interactive installation show Empire - A Virtual Tour was situated in Building No.18 at M50, one of the Creative Industry Centre in Shanghai, with a three-layer tower alike structure built by steel scaffoldings within a space of 200 sqm from 9 to 18 January 2009. The project was trying to break down the space barriers between the virtual and reality by means of 3G Moving network and the web technologies, connecting and communicating the on site control base with 7 outdoor moving groups.

The game Age of Empire was selected as the platform for its 3D virtual reality. The players acted as commandant of their empires in the control base. Each of them could control a group of virtual soldiers and a group of real soldiers. 14 students acted as the real soldiers and started real adventures outside. Shanghai became to be their real game space. Commandant kept enlarging his territory by ordering his virtual soldiers and real soldiers to follow the same orders and scenarios. The real soldiers took live videos and sent back to the control base by 3G to show what they saw and what they met in the process. In nine-days period, the guerrillas occupied respectively „Empire territories“ which covered all over the Shanghai, for instance Transport terminals, the historical architecture, business district, city ruins, science and technology centers, parks, TV Tower and other types of territory.
Empire- A Virtual Tour project showed an illuminating perspective of its original idea from the interactive platform and the research field, created the dialogue on space between virtual and reality by transplanting the game into a real environment. This kind of reverse-thinking pattern broke down the time and space barriers. The new generation is grown up with the development of new technology like Cyberspace, World Wide Web and virtual reality. The Game just captured their interests. The 3G Moving network technology served as a bridge between virtual and reality that turned the M50 control base as a Space-time tunnel. All the audio-visual information was gathered there. The comparison between virtual and reality exposed the „gap” of invisible stories in the virtual game. Even though the virtual solders and real solders followed the same orders from the same commandant, the process and result changed in unforeseeable ways. After all, the game still follows certain rules and scripts, while life is full of surprises.
Carlo Zanni
– The Fifth Day. Ten pictures showing a taxi ride

„The Fifth Day“ is a sequence of ten pictures showing a taxi ride, edited as a slide show on music by Kazimir Boyle. These photos, taken in Alexandria, are ever changing networked stills because linked to critical data describing the political and cultural status of Egypt. Here, Egypt works as a metaphor to investigate topical subjects for the so called „Middle East“ aiming for a comparison with the audience’s birth/living country. Data, retrieved from the Internet and transforming the aesthetics of the photos, can be: the Proportion of seats held by women in national parliament (photo #2), the Corruption Perceptions (CPI) (photo #4), the Literacy rates in adult female and male (ages 15 and above) (photo #7). Some pictures change every minute, those transformed by the name of the city of the connected users or their IPs, other, using data dispatched only once a year, will change (may be) only after months.
Readers who send letters to Sherlock Holmes, 221B Baker Street, London, have been taken in by author Conan Doyle. They have failed to understand that the convincing narrator, Dr. Watson, was nothing but a literary figure, a pure invention as well. A member of the audience who storms the stage to beat up Mephistopheles has also misunderstood what is in play. Admittedly, this does not happen very often. However, transgressions of the boundaries between art and the real world sometimes do occur. Artists have often celebrated and deplored these boundaries, and thematized them by transgressing them.

Peter Handke once offended his audience; Timm Ulrichs was the first artist to proclaim himself a living work of art; Mishima had himself publicly beheaded in a live performance. Duchamp brought everyday objects into the space of art, and John Cage opened our ears to everyday sounds: even babbling voices and wailing sirens were sounds and as worthy of being listened to consciously as music. “Thinkers on stage”, a lecture series at the Stadttheater Freiburg, turned the lecturers willingly/unwillingly into actors. The event implicitly raised the question of whether thinking is just theatre or, vice versa, whether theatre hasn’t always been philosophy.

In an unparalleled performance at the Dubrovka Theatre in Moscow in 2002, the world itself broke into the space of art. During the second act of the musical “Nord-Ost” the theatre was turned into a crime scene: the stage and auditorium were mined, there were armed terrorists everywhere. At the end of the show, there were dead bodies in the seats, in the aisles. The Russian TV channel ORT showed the pictures on Saturday, a few hours after the hostage crisis was over.

Those who had come to escape for a short while their everyday lives, to leave their cares behind, to forget the reality of politics, war, and terror suddenly found themselves confronted with exactly these things, and worse: their very lives were at stake. Through absolute control of the theatre, the audience was dragged upon a stage that it would never have entered of its own accord. Unawares, the audience itself was turned into an actor, forced into immobility on a stage that the hostage-takers had re-designed for their own purposes with explosive charges on chairs, pillars, walls, and bodies.

The protagonists in the Moscow theatre played an extorsive game with their own and other people’s deaths. Although they were “asleep”, apparently put out of action by gas, they were all shot. They and their helpless co-actors had been pushed into yet another stage setting, designed by Alpha fighters this time and executed almost without bloodshed, but to deadly effect: 118 people lost their lives. Being forced into the picture can be fatal. Within a few minutes, the stage created by the hostage-takers had been changed once again. For whom—if not for all of us—was this performance intended?

Scenes for spectacular mass hostage-takings have been passenger liners, hospitals, ambassadorial residences, and hotels. The choice of turning such places into crime scenes might be explained by the logic of the perpetrators. Politically or religiously motivated crimes need the public eye, the attention of the world. The choice of stage for the violent criminal—lonely and deserted places, private rooms—is dictated by opportunity and the awareness of wrongdoing. Freedom fighters and those who call themselves such, who are interested in more than mere personal enrichment or private gratification, prefer to penetrate into public spaces. Obviously, there seem to be enough suitable places.

Theatre and television are stages already; they do not need to be turned into one. The perpetrators of 9/11 could count on their crime being put on the world stage of TV, they did not have to factor this into their strategy. But since nothing can happen nowadays without being photographed or filmed (as the Concorde crash showed), wherever you are can become either a stage or an auditorium. “Big Brother” and “Live-Cams” are nothing but the publicly accepted productions of
such amalgamations of the real world and its visual self-description. Bullfighting arenas, racetracks, and boxing rings are stages where life and death are at stake without criminal energy or belligerent fighting spirit being in play. This is where the gaze that wants to see everything—to the very end—has become institutionalized.

Turning an auditorium into a stage for death means using an existing structure. This is why the political struggle was brought onto a stage, because the stage is the very space for the extra-ordinary. Different rules apply there. The stage has always been the venue for dealing with vital issues, fundamentally and radically, in accordance with artistic standards. The space of art is extraordinary, however, precisely because that is not where the business of politics is conducted, that is not where murders are committed.

Turning the auditorium into a battlefield, into a scene of real life, also means destroying its conditions of applicability. The violent crime of the “Chechen Martyrs Brigade” was surely no “cultural terrorism” like the attacks on the Uffizi Gallery in Florence or the destruction of the Buddha statues of Bamiyan in Afghanistan. Yet in Moscow a work of art—that is, a performed work of art—was destroyed as well and the space of art damaged. According to producer Georgi Vassiljev, the place has become cursed.

Could it be that what happened at the Dubrovka could happen only because nothing tremendous had happened there before? Were the perpetrators in Moscow able to realize what the ordinary drama director can only dream of—the immediate relevance of art to life?

Degas once said that the execution of a painting required cunning and villainy, like a crime. Sonderborg wrote, “For me, painting is like a criminal act.” Federle sees himself as a quasi-criminal, Hüppi talked about himself as a willful offender, and Beuys admonished outright: “Woe to those who are not criminal today.”

To understand the meaning of such comparisons we have to go back to the origins of this comparison in the 18th century. Foucault wrote: “Against the law, against the rich, the powerful, the magistrates, the constabulary or the watch, against taxes and their collectors, he [the criminal] appeared to have waged a struggle with which one all too easily identified.... In appearance, it is the discovery of the beauty and greatness of crime; in fact, it is the affirmation that greatness too has a right to crime and that it even becomes the exclusive privilege of those who are really great. The great murders are not for the peddlers of petty crime.”

Initially, the parallel between art and crime implied the acknowledgement of the master’s right to break the law. The master (the „great“) is the one who acts in his own name and who claims at the same time to represent what is genuinely right.

As Hegel tried to demonstrate with reference to “world-historical individuals” like Alexander, Caesar, and Napoleon: by pursuing only their own personal interests, the great accomplish the higher and timeless General. They are great because the Impersonal, or the General, expresses and realizes itself through their personal striving. When artists are bold enough to compare themselves with criminals, that seems to be the tertium comparationis. The artist’s crime-oriented statement expresses a seamless relationship to the deed.

How is this different from the criminal act? In the work of art, as in a crime, the individual ignores all other laws and rules, except his own. The criminal usually acts for the sake of his own financial interests and has an awareness of wrongdoing, which he manifests through efforts at concealment. The artist, however, has different motives and acts in full awareness of a law of his own that replaces the traditional or any other law and that he offers up to public discussion. That is exactly what terrorists do not do.
Opposed to the crime-oriented view of artistic action is the detective-oriented one: it is not oriented towards the production of objects but towards the perception and the installation of social spaces.

Art today must play with its boundaries—since they are socially in question. Nevertheless, someone shooting in all directions on a theatre stage is a murderer and not an artist. Theatre productions that are too close to current events run the risk of sabotaging the very space that makes them possible. Art requires a delicate balance between closeness to and distance from reality; or at least the distance of what has been decried long enough as being an „ivory tower“ or “White Cube”. We will have to take seriously again what is being dealt with in literature, in music and in dance, on stage and in pictures—so that nobody will have to die there in order to prove that what is being played in the theatre is not a game at all.


2 Michel Foucault, Discipline and Punish: The Birth of the Prison, pp. 67-69, New York 1979
Johanna Dombois
– Not Neither, Not Nor
The Musical Space in Opera Work

Preliminary note: the following text is based on a lecture I gave in April 2008 at the symposium Musik-Raum-Resonanz [Music-Space-Resonance], which took place during the Witten Festival for New Chamber Music. In this revised, heavily cut written version I have retained the style of spoken language, as the performative aspect is immanent in my topic.

I. When Which Space Where

‘But if a space existed, where would it have to be?’ – it would initially seem that only a question as paradoxical as that of Zeno of Elea can provide an answer to a conference theme whose productive difficulties are concealed by the fact that it appears self-evident. The ‘space of music’ – what is that? A space with no corners, admittedly. But what is the location of a space that requires no system of co-ordinates? It certainly lies within compositional architectures, musical interiors in which the exterior resonates aesthetically, as well as in acoustic surroundings – as a shaping principle, or one that enables shaping, and is not primarily physical. On the other hand, music per se appears to be a temporally based art. Gunnar Hindrichs imposed the following formulation: ‘Beings that could only hear’, he said, ‘would perceive the world as temporally, but not spatially constituted.’

One could derive a matrix from the theme of the symposium: right, so music is a space that flows in time.

To us, however, those official makers of music and space who call ourselves opera directors, fluid spaces seem much like what might move mountains in other settings: a noble wish. They cannot be produced with the customary means and vocabularies. Even film and light projections only offer a peripheral solution, in so far as they merely simulate movement through space. Heiner Müller’s Tristan of the century in Bayreuth (1993) remained a manifest ‘building’ in its references – perhaps it was so great precisely because the lighting by Erich Wonder (re) created a delineated architecture on the stage. Fluorescence depends on rear walls that enable it to question them in the first place. In this sense, even the stage career of Wagner’s bon mot of ‘time that here becomes space’ from Act I of Parsifal has scarcely produced more than scenographic Einsteinian kitsch. And how could it be otherwise? For the dynamic space defined by Einstein can only be attained by moving at the speed of light. In other words, we opera directors are evidently too slow, and simply too phlegmatic in our staging methods, for such forms of heightened reality. In basic motoric terms, Wagner’s changing decoration [Wandeldekoration] for those bars in the music that were supposed to become space in Bayreuth (1882) was already lagging behind his own theorem. As the landscape view scrolling on the festival stage via two rolls proved too long in relation to the utterances of the score, and threatened to stifle the musical development in an alarming fashion, Wagner was forced to compose several minutes of additional scene change music in order to maintain the illusion he was aiming for. In short, opera direction is the field that has progressed least from the standards of Newton’s day. The space posited is something that ‘rests’: an inversion of unfolding – but therefore something completely alien to music. Temporal modes are overlaid with a spatial concept and thus disabled. For the new 2006 production of Tristan at the Lindenoper in Berlin, the Swiss architectural group Herzog & de Meuron created a stage set that breathed. Voila: the result was a moving, in fact adventurously active space whose pressure and air chambers one could even have related to the ‘billowing torrent […] in the wafting Universe of the world’s breath’. Unfortunately, however, the hydraulic pump made so much noise that comparatively little could be heard of the music. The kinetic impulse compromised the very aspect that it was supposed to render spatially present. From the perspective of opera direction, spaces therefore seem like a form of semantic vacuum, ‘encircled all around’ and ‘confined by the boundary’, as Parmenides already put it in rather theatrically apt terms, fenced in by hardware, proscenium and walls. One reason for the failure of the space stage of the 1920s to gain widespread acceptance in opera productions instead of the picture-frame stage was surely that the construction itself was, once again, simply a structural-architectural fantasy. The weir used by Patrice Chéreau for the opening of his
Bayreuth Ring (1976) thus strikes me, for all the suggestive power it had at the
time, as the symbol for the standard of opera direction: inevitably halting some-
thing that flows through time. More and more, the price of the desire to high-
light scenographic concerns is the subordination of the musical.
Therefore, owing to pre-existing material obligations, opera direction can only
ever scratch the surface of what musical space presumably means. One could
conclude that it is damned to be mere resonance – an echo chamber. Yet one
is by no means less inclined to listen to an echo than its sound source. On the
contrary: the effect of an echo is due precisely to the fact that the echo draws
additional attention to its mother impulse by dispersing its messages through
multiplication. So I do not see anything wrong with the fact that the relationship
between direction, music and space can initially best be described ex negativo.
In the following section – which deals with the Topographical Space in opera
work – I will take this even further, finally using this emphasis to catapult myself
argumentatively into the opposing camp. In the third and final section, The Medial
Space, in which I would like to present a production of my own in conjunction
with Morton Feldman’s Neither, the concern will be to show that directing can
indeed access a musical space and, in operatic practice, free it from its meta-pho-
rical content.

My Witten lecture contained two further sections that have to be omitted here.
The first dealt with the conception of my production Fidelio, 21st Century (premie-
red in 2004 on the Stage for Music Visualisation at the Beethoven House in Bonn),
as well as opera direction and the acoustic space; the second dealt with opera
direction and the simultaneous space, as well as a current production of the Ring
(Ring-Study 01: Rheingold, Berlin/Hildesheim/Zurich 2008/09).

II. The Topographical Space

I recently read about an illness known as ‘space sickness’, mostly experienced
by astronauts at the start of a space flight; the unpleasant sensations are always
based on the fact that during the rocket’s takeoff, the brain is unable to reconcile
the signals coming from the eye with those from the inner ear. The result: loss of
orientation. Without a moment’s hesitation, I thought of opera. Everyone knows:
the opera genre reaches for the stars, but was born with the very same illness:
the irreconcilability or respective autonomy of images and sounds within space.
The discipline of opera direction has used this uncertainty principle as the basis
for what I consider a heart-rending pragmatism. Certainly, directing opera inevita-
bly involves committing prudent sins of omission; the stage is no castle in the air,
but rather a wooden hut that constantly necessitates cuts and patched-up con-
nections. In recent decades, however, one has increasingly been able to observe
an incredible fuss in which the problems of opera direction almost seem to be co-
ming into their own. I am referring to what is known as ‘director’s theatre’, which
displays a most peculiarly concretist approach to the stage space, and is latently
willing to neglect the musical story in favour of the one in the libretto. I should add
that I am genuinely not one to denounce my own field, and am not interested in a
critical demolition of director’s theatre. As I have explained elsewhere, if it had not
been for director’s theatre, we would not have the critical faculty that now enables
us to test the option of abolishing it. 4) And yet: time and again one can observe
a certain irritation as soon as one speaks of separating the (presumed) space in
the music from the space in which music takes place. It is almost a kind of mental
blackout caused by the pressure of the business. Because music in opera has to
appear within a concrete architectural framework, its own compositional, sonic
and physical directional tendencies are scenographically enclosed and walled
in – quite literally. There is some kind of rampant fear among directors of losing
one’s sense of orientation in the visual interpretation, and they would rather hold
onto what is locally tangible than place themselves at the mercy of insubstantial
contexts.
An example: in the mid-90s, Michael Leinert directed Die Walküre at the Staats-
theater in Kassel (and I was not uninvolved, so I am presenting hard facts here).
For the second act, which culminates in the disavowal of the world knowledge that defines Wotan’s claim to leadership, Leinert designed a library room. Books – culture of memory – exclusivity – knowledge: the genesis of the image is obvious enough. The aim was the representative location of a philosopheme. The problems began when Bodo Brinkmann, who was singing the part of Wotan, raised the question of where to put down his spear when the time came. Leinert suggested leaning it against the bookshelf. Brinkmann disagreed, and very vehemently so. He said (to paraphrase somewhat) that it was an impermissible trivialisation, that a spear is not a broomstick, but rather – precisely in this situation – a code for something imposed even on this god. And he was right. For this shows that the image of the library may click visually, but is ultimately inadequate as a symbolic representation because it is quite simply too concrete for that which cannot be shown. Leaning the spear against the shelf meant demoting the store of knowledge in Valhalla from a parable to an interior – rather like ‘having Moses put the stone tablets on the cupboard’. 5) But through the scenic diminutive – and this is the crux of the matter – Wotan’s great multi-perspectival monologue could no longer be grasped in music-dramaturgical terms. The space was too small for anyone to credibly lose themselves in the infinity of knowledge.

This incident and other similar ones illustrate how many of the conceptions in director’s theatre are based on a fundamental error: they confuse the space with an empirical point within it. The topographical location or relocation of music-theatrical events strikes me as a defining characteristic of director’s theatre. And so we end up with the familiar, all-too-familiar sites: Fidelio in the Spanish court dungeon, Fidelio in the French Bastille, Fidelio in the American Guantánamo. The space of theatrical action has shrunk in its significatory perspective, and may even disappear entirely from the space of musical action without being able to posit substantial statements in doing so. This ultimately results in the aesthetic of the snapshot. Director’s theatre is infatuated with stills and closing images, and the entire production leads up to them as if they offered some market-related benefit. But a photographic memento as a derivative of the yearning for a fixed location naturally undermines, in my view, every compositional texture, every kind of layering, and ultimately the entire musical edifice.

It is not the fourth wall that is the problem in opera today, then, but rather the first, second and third – and the fifth and sixth, if you like – which respectively show where above and below end. The misconception is the belief that the space within which the ‘space of music’ is meant to take place needs to be based on documentary factors and be architecturally generated. I would therefore never argue the case for new theatre buildings, but rather that the existing, fixed stage space should be beaten about, overstretched, blurred, made amorphous, oscillating, diffuse and transparent long enough for us to view the necessity of a smooth, musicophilically stimulable space as something normal. The essential concern should be a musicalisation of space, which brings me to the next section –

III. The Medial Space

– which I would like to relate to Neither, Morton Feldman’s ‘opera in one act for soprano and orchestra’ of 1977. 6) There is perhaps no other work in the history of music theatre in which it is so difficult to define where, that is to say in what space it is set. No comparable work is as crystal-clearly approximate with respect to concrete information, none eludes all the algorithms of staging so completely; indeed Neither – as the title insinuates – is the essence of the approximate, even cutting itself off on its way to the grammatically complete pairing ‘neither… nor’. The other side of reality in musical form, its musical genesis formulating nothing except its own fragility, it is a porcelain work that only makes its appearance at the outermost edges of the scene through its own extinguishment.

Nonetheless, Neither too demands to be performed. And perhaps this work, which remains in a perennial state of evasion and negation, actually offers, because of its natural level of abstraction, the perfect resistance to find out what ‘space’ in opera work can ideally be if consolidation must be understood as
Neither uses a 16-line text by Samuel Beckett that specifies no plot, no characters and no staging. 7) There are certainly suggestive images – doors opening and closing, for example, or footsteps and shadows –, but these all form part of Beckett's archetypal inventory and are not tied to any material reality. Opera itself becomes an "unspeakable home". 8) The initial dilemma of a production, therefore, lies in the fact that any kind of stage space already sabotages the space Feldman was concerned with defining, for the simple reason that it exists; even one curtain rising – already wrong. An anonymous soprano without any task except that of making herself perceptible, singing these things at the uppermost limits of articulation, where words dissolve into their component sounds and the messages conveyed dissolve into breathed air. One ferment of the composition is a ppp ostinato that seems to be floating in equilibrium, as if glazed – a material with too little to hold on to for it to gain any profile. The music makes no disclosures and knows no escalations, rather breaking with any formal directionality. But: it is never short-lived. It breathes in long phases, drawing threads together to form surfaces in the expanse of an orbit without centre. It is at all times an affirmation of acted-out negation. And this reminds us time and again of that first conversation between Feldman and Beckett that took place on 20 September 1976 in Berlin. I shall quote an excerpt – the two men were sitting together to consider the collaboration suggested by Feldman:

Beckett: 'Mr. Feldman, I don't like opera.'
Feldman: 'I don't blame you!'
Beckett: 'I don't like my words being set to music.'
Feldman: 'I'm in complete agreement.'
Beckett: 'But what do you want?'
Feldman: 'I have no idea!'

So many negations, and even the exception, Feldman's statement, 'I'm in complete agreement', refers to the preceding negation – one indeed wonders how this dialogue was even able to flourish. It is documented non-presence – and, precisely because of this, a parable of this unmistakable, lucid work which, in its own way, recalls the old mathematical formula stating that minus times minus mysteriously equals plus. So, returning to the question 'Where is Neither set?', one could perhaps answer: in limbo. I would say that the famous dichotomy between 'to' and 'fro', which Deleuze describes as conjuring up the image of Beckett's rocking chairs, thematicises the threshold to a space concerned with no less than utterance and perception as such, or perhaps their fluctuating manifestations. Neither sends out a meta-plot. Referring to Elemental Procedures, Marion Saxer writes: 'One could almost say that philosophical thought [...] rises to the surface of the music' 9), and similarly this opera, which is not an opera, is a piece of music theatre that emerges in its own self-transmission.

In my view, therefore, Neither can only be set in a medial space. I would not, however, want the word 'medial' to be misunderstood as a term for something practised by apparatchiks or info-junkies. Nor should it be taken as prescribing artistic approaches that depend on plugs and sockets. I wish to use it in the sense of a specific minimum requisite level of self-reflection. If media art has taught us one thing, it is a critical awareness of the material – something that is especially absent from opera, which could benefit from a chronic infection in this respect. Hence for Neither I rely on a reabsorbing space that is prepared to say something about itself, and validates an interpretation that scenically incorporates it. In her best-known book, the American media theorist Brenda Laurel suggests treating Computers as Theatre 10). The idea of the theatre house and the computer case overlap, she argues: audience rows correspond to the keyboard, the stage portal to a screen and the backstage to a processor. For Neither I would now like to scenographically turn this hypothesis inside out, so to speak. Feldman once said that the basic concept of his work was located 'between categories.' 11) And so our stage itself will be a medium, a space mediating and deceptively oscillating between inside and outside as a modern, a self-generating generator.
that renders the music's material visible in the course of its genesis. At best, this is the simulated interior of a communication machine, for example a computer – not literally, but nonetheless depicting something like a superlativist, music-visualising circuit board whose internal circuits are set in motion on the scale of the theatre portal, thus simultaneously producing and memorising Feldman's 'notation images' \(^{12}\) and creating a spatial memory structure for sounds that are constantly trickling away.

In this context it strikes me as not irrelevant that in the mid-1970s, Feldman began to study the weaving and braiding patterns of traditional Middle Eastern rugs (Fig. 1), whose structures he saw as models and applied to his own compositional techniques. Repetitive ornaments and lines that are forced out of their overarching symmetrical disposition through slight manual errors or imprecision, yet never negate it, became ostinato patterns and timbres that are processually transformed. \(^{13}\)

Leaving aside the fact that every carpet can be laid out in a space \(^{14}\) and define it as such by indicating a gravitational point (Fig. 2), it does seem possible to establish a subtle connection to the patterns that are familiar from circuit boards and wiring diagrams (Figs. 3a – 4b).

In both cases one finds the same irregular rigour, the same vertical perspectives of meaning, whose branches begin to dissolve their own balance through affirmation, meandering leaps across corners, filigree threads that end in knots yet are still continued, offset in relation to their original lines.

The imago of the circuit board is intended to become the catalyst for a staging that seeks to visualise Feldman's composition from a knowledge of its production. A space made of driver technology for Neither. For only a membranous environment can establish a congruence between making present the 'self' and its absence, which Beckett called the 'unself'. Feldman said: 'The main concern was to find an expression of the unself, which I imagined in a completely isolated, depersonalised, perfectly functioning machinery.' \(^{15}\) In this context a technomorphic medial space symbolically stands, I would say, for the actions of a protagonist simultaneously finding and losing, extolling and surrendering itself, 'beckoned back and forth and turned away'. Feldman's 'unspeakable home' may lie on the horizon of our own desire to communicate.

To conclude: a 'musical space' for opera work would be one that transforms itself by enabling the music to appear within it. This means achieving a mimesis of the music by mobilising and transcending the unambiguous architectures of the empirical stage space, but not atomising them. After all: the only chance we have is to distract systematically from the fact that without walls, we would not have any opera. So, for the record: yes, there is a liquid 'space of music' for opera direction. It can be enabled as a 'musicalised space'
1) The text first appeared in German in Positionen, issue 78 (February 2009), pp. 30-34. (The passages with text and illustrations on Feldman's engagement with Middle Eastern rug patterns were produced separately for the online art forum beam-me-up.)


5) Bodo Brinkmann, retrospective conversation notes from 11 April 2008.

6) All information on Neither here and in the following relates to Morton Feldman's score Neither. Opera in one act on a text by Samuel Beckett for soprano and orchestra (1977), Universal Edition UE 16326. Our production is scheduled for the 2009/10 season.

7) Excerpts from Neither can be heard at: http://www.wienmodern.at/Default.aspx?TabID=168 (last accessed on 5.4.2009).

8) The final line of Beckett’s text.


11) Quoted in Morton Feldman, Essays, ed. Walter Zimmermann (Kerpen: Beginners Press, 1985), p. 84. The text in which this statement appears was originally published in Swedish (‘Median kategorierna’), then later translated into German and French.

12) Saxer, op. cit.

13) Karlheinz Essl points to the following aesthetic amplification: Feldman's engagement with Anatolian nomad rugs [yürük] led him to discover the organic creative power of forgetting, which had a direct effect on his compositional work, for example in Why Patterns? (1978). Unlike Persian rugs, the Turkish yürüks are woven in such a way that the completed sections disappear under the loom, meaning that the results of the weaver's work are invisible to him/her. It is thus impossible to check what has just been produced; it only remains as an image in the memory. And because this remembering will always be subject to mistakes, the pattern gradually changes in the further course of weaving. So Feldman transferred this method to his compositional approach. As soon as a page was completed, he produced a fair copy in ink that could no longer be corrected, put it away, and did not look at it again until the entire piece was finished.’ Karlheinz Essl, Morton Feldman Projekt. Concert by the Klangforum Vienna on 22.1.1994. It can be read at: http://www.sammlungessel.at/deutsch/musik/archiv/feldman.html (last accessed on 5.4.2009).

14) Translator’s note: the original contains a pun here, as the word auslegen means both ‘to interpret’ and (using the word's components in the most literal sense) ‘to lay out’.

Art contribution

Tan GenXiong
– Safety Zone

Safety? The global economic integration, and the invasion of transnational capital and the financing has not improved the safety of the world, or brought to people with the commonly happy and peace feeling. In fact, the rapid development of cost-effectiveness incurs a large number of unemployment in our society. On this premise, the so-called prosperity of society is weak and vulnerable. It reflects the awkward reality of the current human living situation. People generally criticizing or questioning about the economic issues referring to „globalization“, as what kind of hope or the “safe” zone for the survival of mankind it may bring? How far is it from us? The juvenile street riots and the rebellion social image in Greece tell people: the reality of our living condition today is not safe!

This short film uses the street-performance images on the zebra crossing in a temptation to comment on the connotations of „security zone“. 
Reinhard Storz
– Beyond The Borders.
Film Clips For The
Getting Over Of Space-Time Order

A little girl falls out of her bed and disappears through the wall behind the bed into the forth dimension. Only with great efforts she can be brought back into her parent’s living space. Little Girl Lost is an episode of the American TV series The Twilight Zone (1962). About thirty years later the TV series The Simpsons takes up the idea of Little Girl Lost, only that, here, the comic strip character Homer doesn’t fall into the forth dimension, but from the drawing’s second dimension into the third one of 3-D computer graphics in order to eventually land in the real-spatial living world of man. Four-dimensional hyper spaces can be proven in higher mathematics and physics but are not accessible to our direct experience. Today, the forth dimension is often equated with time and 4-D space with the idea of “space-time”. So far Albert Einstein’s theory of relativity (1905/1916) is part of our general education. The slowing down of time through quick motion favors the fantasy of space travel.

As a literary motif time travel already appears in the late 19th century, in the movies in around 1960 for the first time. Chris Marker’s cinematic photo novel La Jetée (1962) is only the beginning. Six years later the motif appears again, similarly melancholy in a concluding sequence of Stanley Kubrick’s 2001: A Space Odyssey, while Terry Gilliam’s Twelve Monkeys translates the pattern from La Jetée into the 1990s’ Hollywood iconography. Already Gilliam’s Time Bandits (1981) had gone through the motif of time travel in fairy tale pictures, and in popular movies like The Terminator, Contact, The Fifth Element and The Thirteenth Floor it plays a key role.

As background for the idea of the dematerialization and re-materialization of persons in another place, another sphere, another time, various cultural-historical impulses can be assumed, starting with shamanic travel, with Platon’s concept of ideas, Jewish Mysticism of the Kabala or the Christian theory of the Holy Communion’s transubstantiation. Andrei Tarkovsky’s movie Stalker (1979) links such mystical-philosophical reflections with his protagonists’ quest for the truth which move in an area governed by cryptic rules, the “zone”, next to the abyss of their own psychic state of mind. Also Darren Aronofsky’s movie Pi (1998) leads one to a magical border area, where computer technique, kabalistic numerology and paranoid horror combine to form a subjective drama.

Since the 1990s the digital age leads to a new understanding of matter. The body’s consistency is not defined by atoms anymore, but by a code which can be translated into alpha-numerical signs. From matter a pattern of data can be read out, the genome of an organic body or the digitalisat of an analogous preparation. Advanced technique is said to allow, in the near future, material appearances to form again from such codes. The so-called beaming in the television series Star Trek (1962) does function thanks to such de- and re-materialization, even though, here, there’s not yet talk of codes, but of beams, and even though the method still reminds one of an apparatus-supported magic trick.

Twenty years after Star Trek Steven Lisberger’s movie Tron (1982) presents, as first sci-fi movie, the dematerialization of a human being via its digitalization. In The Fifth Element by Luc Besson a hybrid hi tech procedure is used pictorially for the reconstruction of a human being from a body fragment, while in David Cronenberg’s movie eXistenZ a so-called “bioport” leads to a virtual game existence as post-industrial interface. Here, the concept of the Virtual Reality crosses with the French philosophers’ simulacrum idea. Compared with their significat, signs and images break free, up to total referencelessness. And they gain a life of their own. The demon steps out of the monitor and faces the screen hero in person, be it in Chris Cunningham’s video clip Come to Daddy or in The Ring by Gore Verbinski. And vice versa: Man steps into the medium’s virtual space, as cybernaut in Robert Longo’s Johnny Mnemonic, as avatar in Tron and eXistenZ, as physical intruder in David Cronenberg’s Videodrom. The clips from Time Bandits, from Contact and The Matrix speak of an open border, too. Cleverly, a vodka bottle serves as medium of transcendence in Michel Gondry’s commercial clip Smirnoff.
The basic theme of all movie examples presented here is the overstepping of space-time borders, the submerging into picture spaces and virtual realities. Physical and metaphysical orders that always have been put forward and questioned by religion, philosophy, science and art are reflected in the medium of movie fiction, artfully and suitable for the masses.
Li Zhen Hua
– 0 = 10,000

The Age of Dharma Decline will go on for 10,000 years
Material is immortal
Back and forth in Cycle
After all is Nirvana

From 0 to 1 constitute the digital (code) world and its existence is no longer a topic to be astonished by. But the process from 0 to 1 then To 0, is also similar to the process from nothing to exist and from exist to nothing in Buddhism believes. Material can be immortal energy, but Nirvana Will come in the end, no matter in the Age of Dharma Decline or in the era of globalization. We are experiencing the process of from 0 to 1 and then from 1-0.

The project seeks to establish the buyer-seller relationship in the contemporary society, and place this relationship in an unpredictable time space. Nevertheless, this time space is set a starting point from the beginning of Christianity. By taking the Buddhist concept of The Age of Dharma Decline as a lead composes the artworks on Internet. This derives from two issues that I have been concerned with. One is the theory of the origin of time and the methods to define the notion of time from different religions, such as theology, Buddhism, etc. Another issue is the short-lived contemporary life in the context of history and archeology perspective. Following these two leads, the online works will present a micro-
time of rapid changes in the world. From the conceptual level, I hope to absorb this fleeting feeling in a length of Ten thousand years. According to the Buddhist thinking and the balance theory: ‘Virtual is reality, reality is virtual’. It is not hard to understand why 0 equal to 10000. This proposition not only has a scientific perception, but also has the Buddhist view of the world.

Implementation mode:
1. A continuous reduction of 10,000 years o'clock.
2. A 10,000 years contract between the seller and the buyer.
3. A virtual public space for the dissemination of the artworks.
Art contribution

Monica Studer & Christoph van den Berg – T.R.I.P

The T.R.I.P. (Transcendence for Real and Implicit Personalities) project is a methodical and practical contribution of the FOWDIB from 2008 that deals with basic questions about drug-induced consciousness expansion in PCs. Some programs have the same intoxicating/cathartic effects on computers as hallucinogenic substances do on the human organism.

The website on which this project has been published for the first time provides exhaustive information on the arcane depths of research into digital transcendence. It has been specially designed in low-key colors to protect the nerves. You can also try out the newly developed T.R.I.P. Pharmacograms on your PC or MAC.

The spiritual parents of the T.R.I.P. Project wish to point out that they are not scientists and that they are not liable for consequences, should anyone believe that the contents of this website are scientifically reliable.
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Concept and realisation Beam me up: Reinhard Storz
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Essays by: Reinhard Storz, Christina Vagt, Regine Buschauer, Guillaume Bélanger,
Sarah Cook, Jayanne English, Martin Brauen, Alan Sondheim, Richard Schindler,
Johanna Dombois
Art contributions by: Joe Winter, Marc Lee, Esther Hunziker, Alec Finlay, Agnes Meyer-Brandis, Jamie O’Shea, Alan Sondheim, Knowbotic Research, Samuel Herzog, Jieming Hu, Carlo Zanni, Tan GenXiong, Li Zhen Hua, Monica Studer & Christoph van den Berg
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