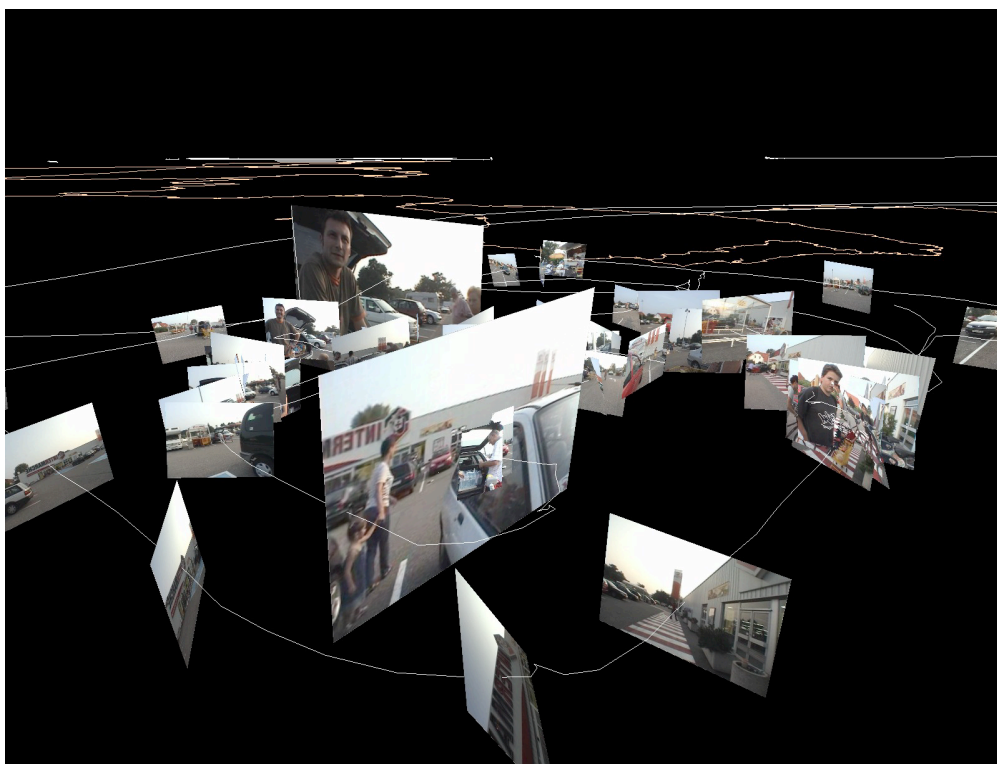
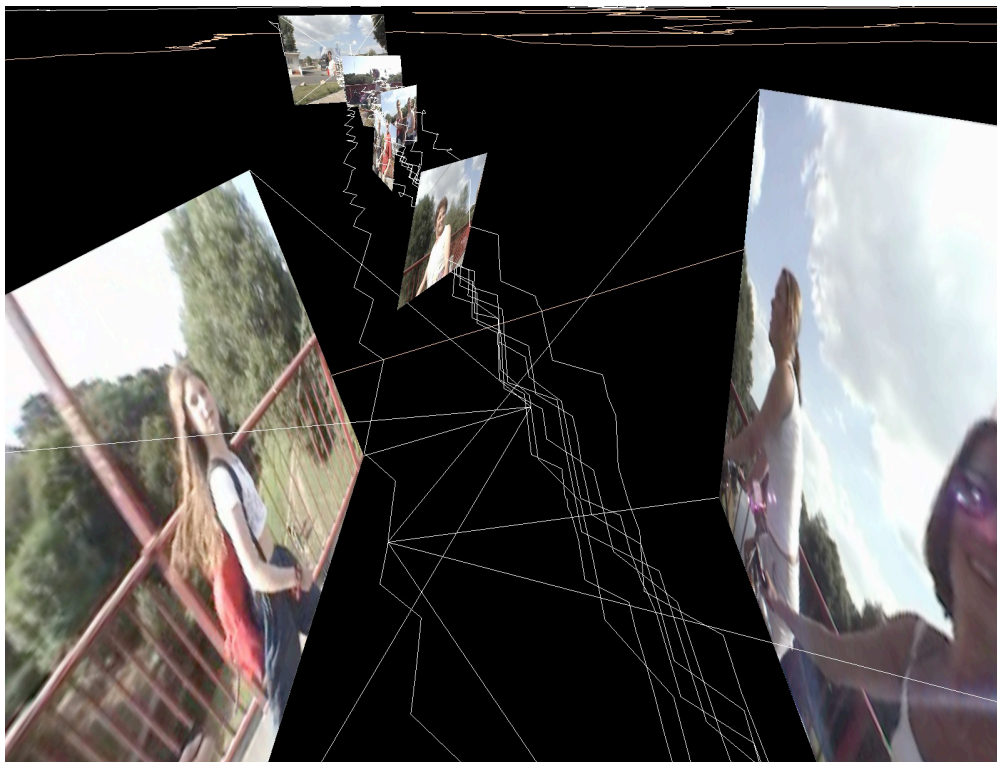
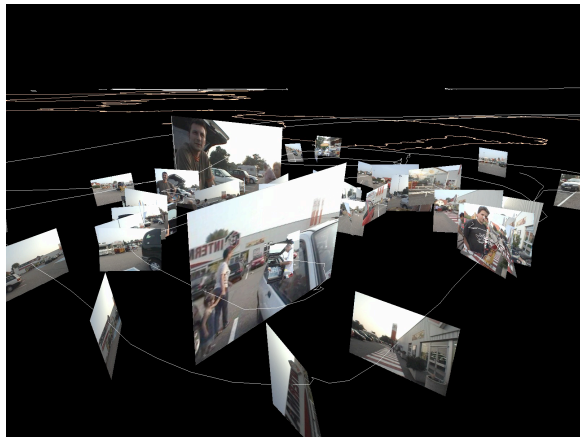
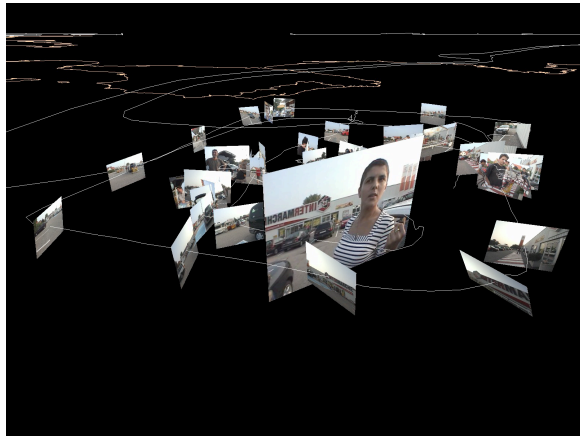
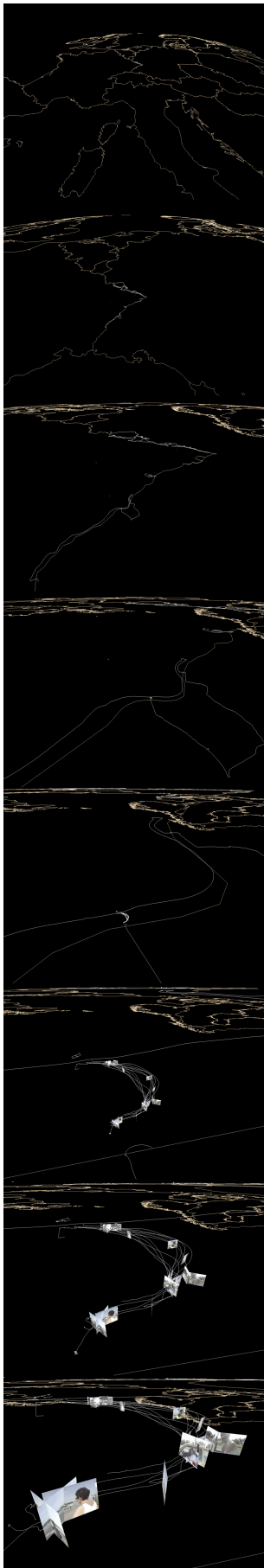
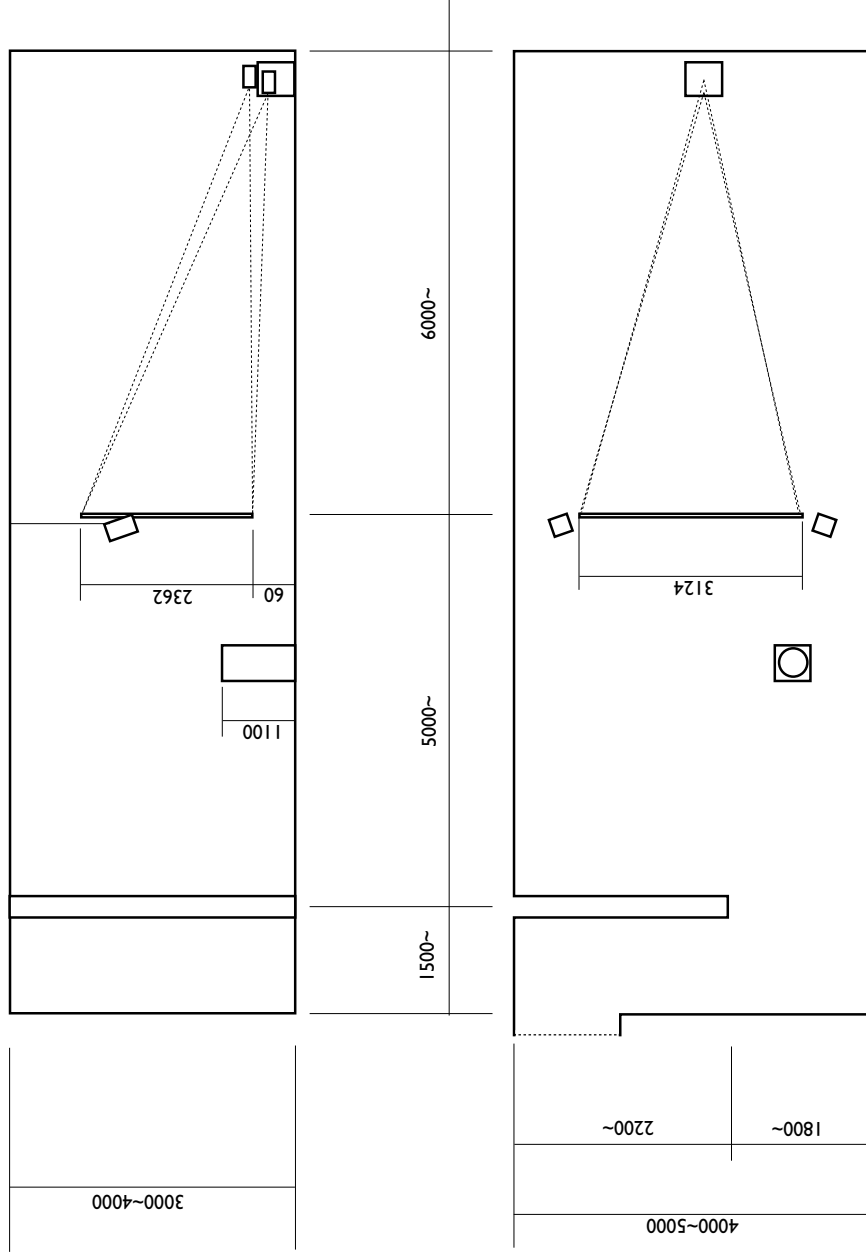


Field-work@Alsace 2002-03







Passive Stereo scopic Proection  
 Using special Rear Projection Screen  
 150 inch diagonal (Stewart FLM- 150)

Field\_Work@Alsace 2002  
 Masaki Fujihata produced with ZKM Karlsruhe, Germany  
 July 2007 M.F.

# Time space interface using DV(digital video) and GPS(Global Positioning System) technology -A study with an art project "Field-Work@Alsace"-

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**Abstract.** This paper is summarizing a media art project from the artistic idea to technological realization, and tried to conclude the important aspects of media art from both side. Auther is an artist had been working as a pioneer in this area from computer graphics in early eighties until interactive media art. The project "field-works@Alsace" is a truly successful example in a context of "Interactive Cinema." Especially with the CAVE environment, its 3 dimensional space made possible to tactile the content of the piece very well. Originally it was not planned to use the CAVE, but the CAVE is the ultimate system for this project.

## 1 Preface

As a media artist, media technology is a tool to create a new medium, which enables to realize an artistic vision into real production. The following example, "Field-work@Alsace" is the actual art project which was co-produced with ZKM(Center for Art and Media Technology), Karlsruhe, Germany and myself. Within the artistic side, the aim of this project is collecting people's voice who is living near the border between Germany and France by the video interview with GPS. Technical aspect of this project is a sensor fusion of positioning and orientation (directional) data with moving images. By establishing this fusion, at the final image at the CAVE [1, 2, 3] screen, the video image is projected on the virtual screen at the place where the image was shot and is moving according to the movement of the camera, which can create an illusion, for example, as far as the screen moves tilt or pitch the horizontal line in the video image is not moving at the center as it is.

## 2 Location and Image

The fundamental idea for this series of project titled "Field-Works" is combine two different information, the position data and video images into one



**Fig. 1.** “Miage no Fuji” Katsushika Hokusai, wood block printing The height of the Mt.Fuji is about 1.7 times higher than the real.

cyberspace. In 1992, I experimented with GPS (Global Positioning system) for recording the series of position data, longitude, latitude and altitude while I was climbing up the Mt. Fuji that is the highest mountain in Japan. The original idea for collecting GPS data was to deform the shape of Mt.Fuji to fit the impression of climber. "Deformation" is one of the traditional methods for paintings. In history, Mt. Fuji had been deformed many times by many famous painters and wood block printing maker in the past. (See. Hokusai's famous Mt. Fuji picture (Fig.1) ) After the real experience of climbing the Mt. Fuji, the resulting image (Fig.2) is made and is showing an exploded shape of Mt.Fuji which was deformed by my slowness for climbing up that is caused by tiredness of my foot. This exploded shape was made by scaling the section of each altitude according to my speed of that altitude; speed was calculated from GPS data.

At the same time, I also recorded whole sequences with video-camcorder, Sony Hi-8 at that time. For the show in 1994, the special archiving software was programmed for locating video images to the GPS data. (Programmed by Nobuya Suzuki with the workstation.) It is a good example that is showing a new way of handling video sequences with its location. Location can be used as a tag for searching a video sequence. Each yellow tag on the 3D GPS line that can be clicked by mouse is designed for activating the movie on the desktop window. (See Desktop image from Irix workstation (Fig.3))

After the year 1994 I had been stopped to continue this project, from the year 2000 I started again the similar project titled "Field-Works". The year 2000 is a mark able year in the field of GPS, because president Clinton stopped the scramble from consumer use signal of GPS from 2nd of May, which gives us completely same accuracy with military use the accuracy is plus minus 5m.

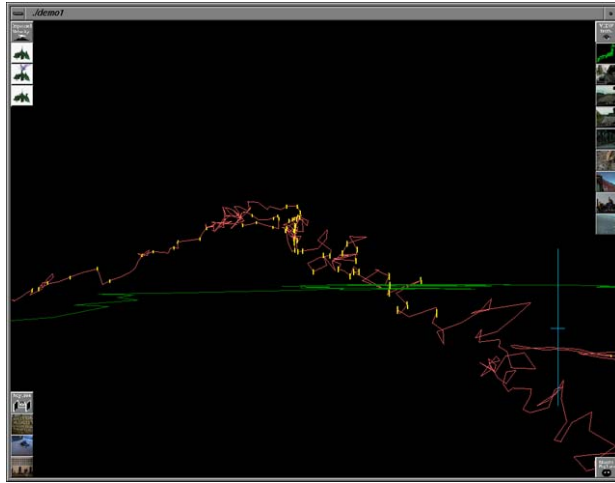


**Fig. 2.** “Impressing Velocity” 1992-94 Masaki Fujihata Resulting; image deformed shape was made with the climbing up data.

### 3 Starting Field-works project [4]

After two years experimental projects realization from the year 2000, I started new project that targeted the border between Germany and France, for the coming exhibition “Future Cinema” which would be organized by ZKM in 2002 [5]. The border exists an abstract conception, but once it is activated it changes the status and is possible to kill people. However the border line is not visible in real location even visible on the map, the idea for the project was coming to my mind the border can be visualize by tracing with my foot and GPS. Of course these GPS lines can contain video sequences of the interviews with local living people near the border.

I targeted the area called Alsace. Strasburg is the main capital of this region and now is famous for the center for the European Union. Alsace is not France and not Germany; even the political situation of this area had been changed to French or to German several times. Still they are independent from others and still some of them can speak their own language “Alsacisch.” In this area, we can here German speaking, French speaking, and Alsacisch speaking which can make a border between different languages, but in real most of the living people can speak all of them. It’s a multi-lingual situation and for the people who can speak three languages the border is meaningless, it is internationally borderless. The real border is more complex.



**Fig. 3.** "Impressing Velocity" 1992-94 Masaki Fujihata Computer display capture image; jamming of lines are the GPS data and yellow tiny vertical lines are the hot spots for the movie.

One clear border I found while in the process of the project is IT border. Each mobile phone company should account the transactions when the route was changed at the border that reflects the charge. Once you cross the border from Germany to France, at the each time the mobile is annoying with sound, which tells you that the welcome message was received and new roaming service started even when we are speaking same language before and after crossing the border.

#### 4 Position and Orientation

Real space where we are living in is three dimension and we are passing through the time. Time cannot be experienced from backwards. Photography made possible to cut off two-dimensional image from three-dimensional space and Cinematography made possible to record series of two-dimensional images from three-dimensional space and time. It was believed that the resulting image cannot contain of its location and is the main characteristics of the image generation. Attracting point of photography is photo image may invite us to start to imagine the place where the image was fixed. Our imagination can bring us to the place where we do not know, we also do not care even the place was exist when the photo was recorded. On the other hand, when the photography was used for documenting the fact, a photo need to be attached with a written text which documenting the happening, location, and relation. The position and orientation data can make photography more valuable media.



**Fig. 4.** Equipments; DV camera, PDA, GPS, and 3D strain

In the case of "Field-works" project, the location is captured by using GPS even the video camera was not running, for example while in transporting from main camp to the real location, the position data have been captured. Technically speaking, it is quite important to record position data without video sequences, because these lines can be used to figure out the shape of that region near the video image was shot. In this case, GPS data recording is dominant rather than video images.

Another important data for the final production is the orientation data that is showing the directional data on which direction the camera was targeting. It is used for commanding the direction of the screen in the final cyber space. "3DM" is the name of the sensor made by 3D strain company. (See Fig.4) The movement of the screen is showing the movement of the camera which indicating the intension of the cameraman what he was willing to shoot. At the show in CAVE the user can hear the interview itself and see the faces and some more sceneries and also user can read the movement of the author as a cameraman.

## **5 Reality with the screens in the screen**

Cinema was invented in early 20 centuries. Shooting a moving image and seeing a moving image is quite new experience for the human's history. Shoot by camera and then projected on the screen is the typical scheme for the cinematic system. Within this system the camera can move but the screen is not moving. Even for the television system, viewer had been sitting in front of the television set. For the coming situation of media so called multi-media, new-media, or networked media, this common sense will be alternated by the new medium which is not

yet invented and will make a new common sense that the screen will fade away or screen can contain screens or screen can go anywhere. The CAVE, originally proposed EVL at Illinois's university is a good example for this topic where people can forget about the real vinyl screen, and then the viewer can focus the virtual object in cyber space.

The interaction with images and real 3D space movement the new type of reality might come up to the user. It is not a kind of virtual reality also not a kind of mixed reality, but the user's imagination can be convinced to construct a spatial reality by combining 3 dimensional movements in cyber space and with many numbers of the fragmented video images which had shot in real space. The importance is how to kick and start user's imagination for creating and connecting several different realities into one. The interface, in this case whole design of the medium, should be designed very carefully and centered the user's behavior. Designer should learn the user's process of learning the language of the interface.

In my case, as an artist, who designed whole process of this project and realized it by himself until exhibit it. When at the starting point, no one could imagine how the result is becoming; only the artist could recognize and was possible to start the production. Each tiny movement of the screen in cyber space was calculated when it was recorded on site according to the consciousness of the artist for the final production. I need a new design of the medium and then I constructed and used it. Technically speaking in the engineering side, it is possible to create any type of new medium or combine several different mediums into one or even improve the pre-exist medium, but it is not usable for the artistic production when it could not give the artist to imagine the valuable aspect of the medium itself.

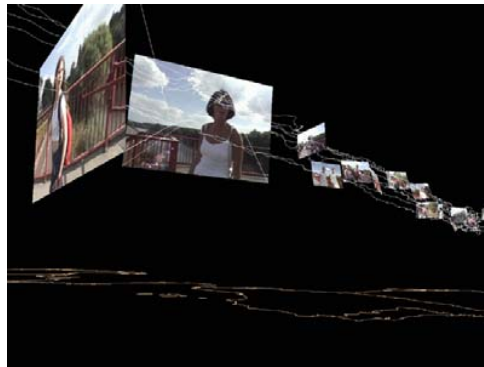
Figure 5 and Figure 6 are taken from computer screen. Thin white lines are made from GPS data which shows the movement of the cameraman, and the rectangle frame is texture mapped with video streaming. While the video is running on it, the rectangle frame is also move according to the orientation data. For example when the camera move to right, then the rectangle is also move to right. Each video was edited in post process, each video's duration is about 30 sec. to 90 sec. and the maximum three videos are running simultaneously.

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**Fig. 5.** “Field-Work@Alsace” Computer display capture image;

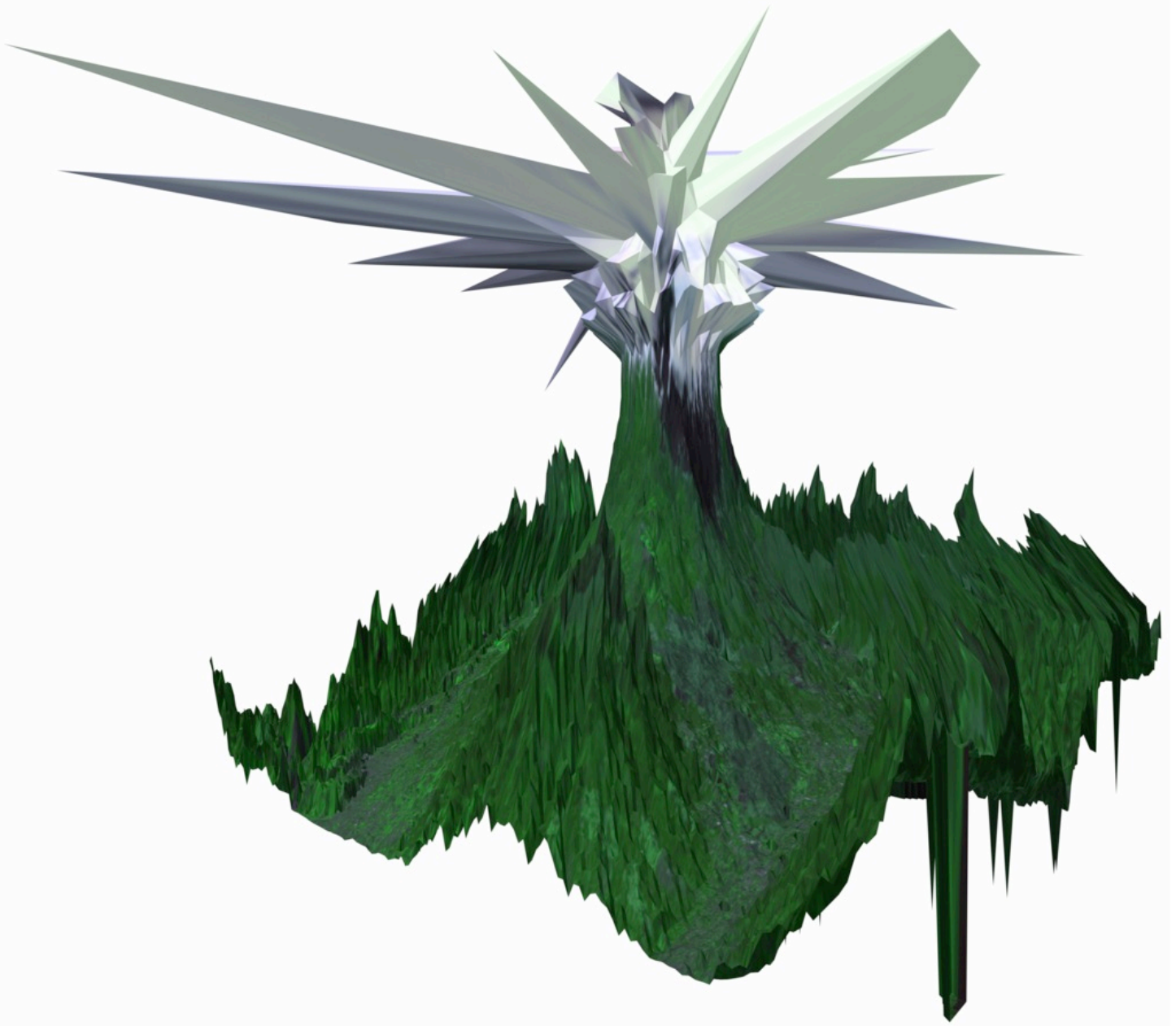


**Fig. 6.** “Field-Work@Alsace” Computer display capture image;



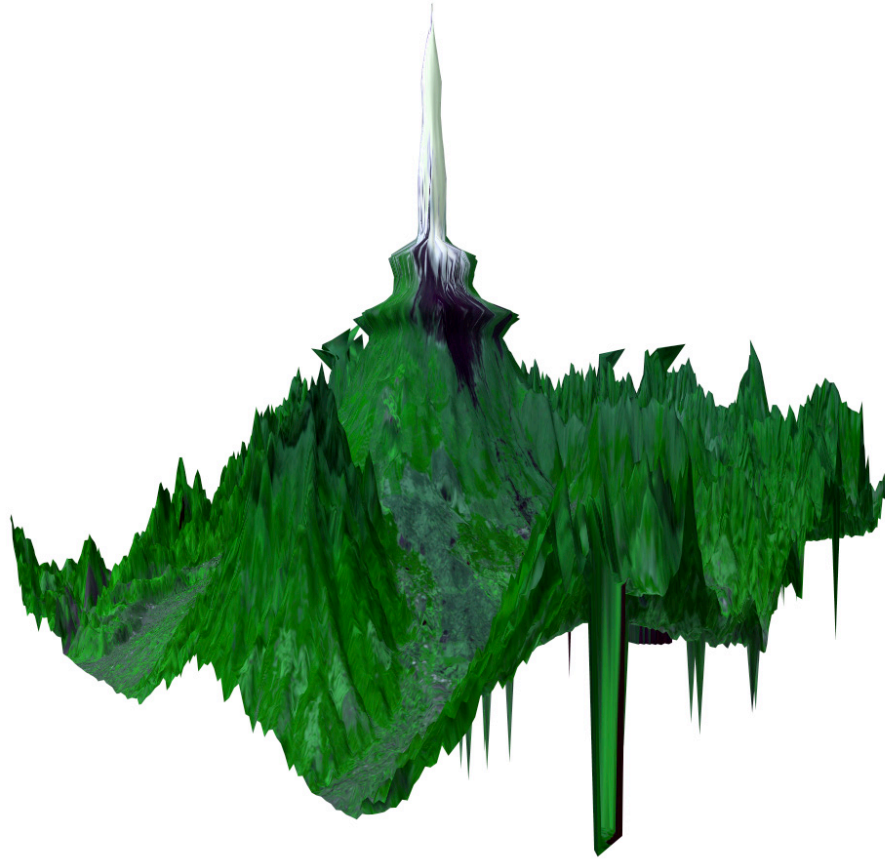
**Fig. 7.** Snap shot on the ferry boat on the Rhein river.

Impressive Velocity 1992-94

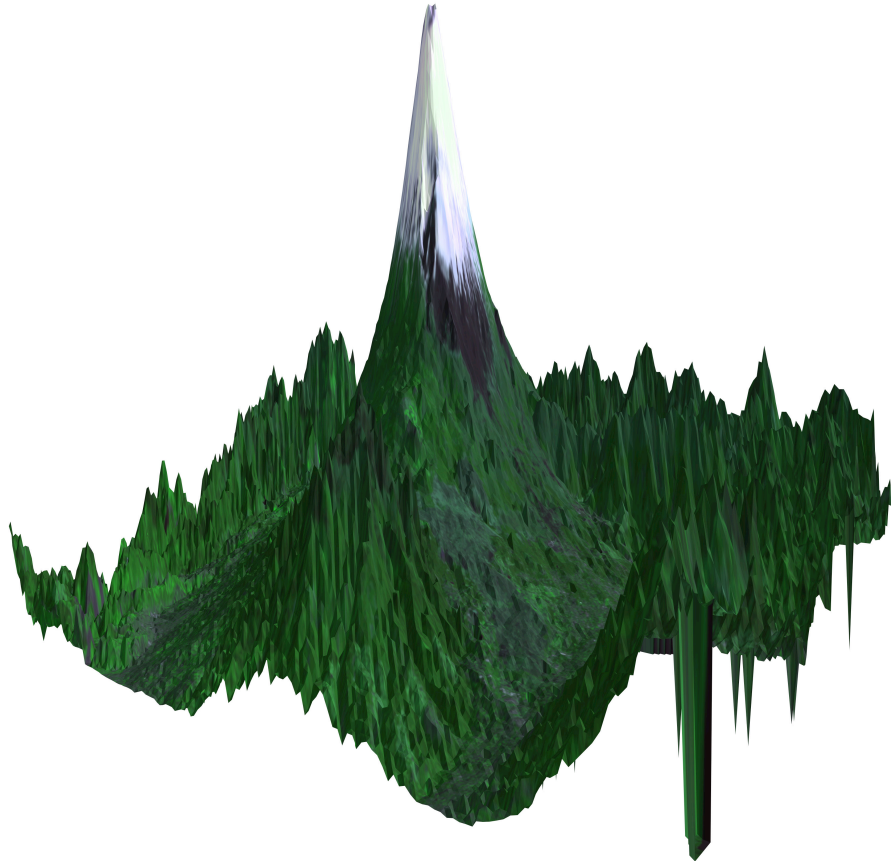


Deformed Mt.Fuji Using the GPS data captured the way climbing. Sections at each attitudes are deformed, scaling up or down, according to the speed at tht time and position. Generated spikes are shown the slowness of the climber, who got tired and did pause, especially on top of the mountain.

Original data was captured in the summer 1992, processed and exhibited at ICC gallery in 1994.

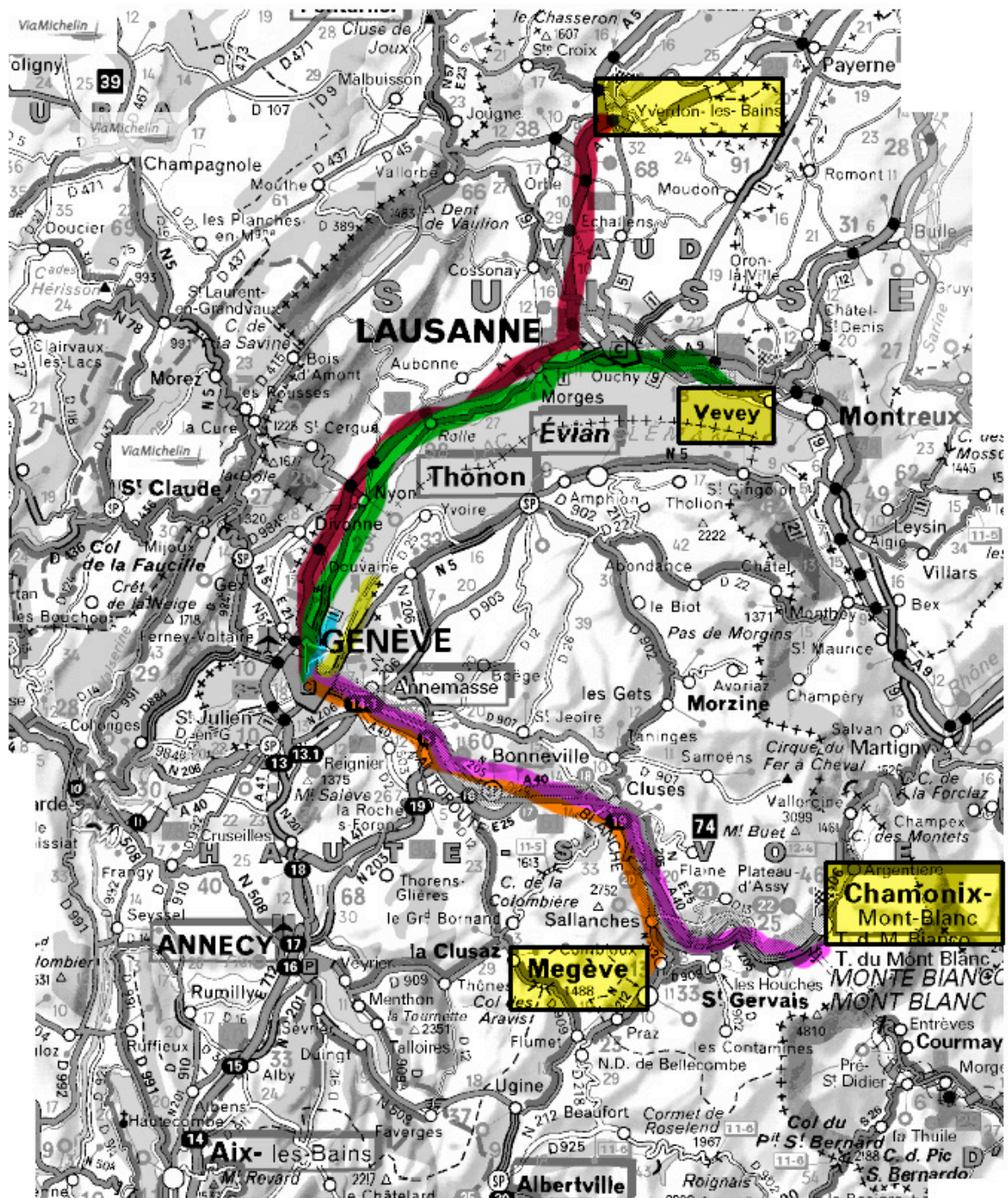


Deformed Mt.Fuji Using the GPS data captured the way down the mountain.



Un-deformed Mt.Fuji The height stretched 12 times.

Landing Home in Geneva 2005



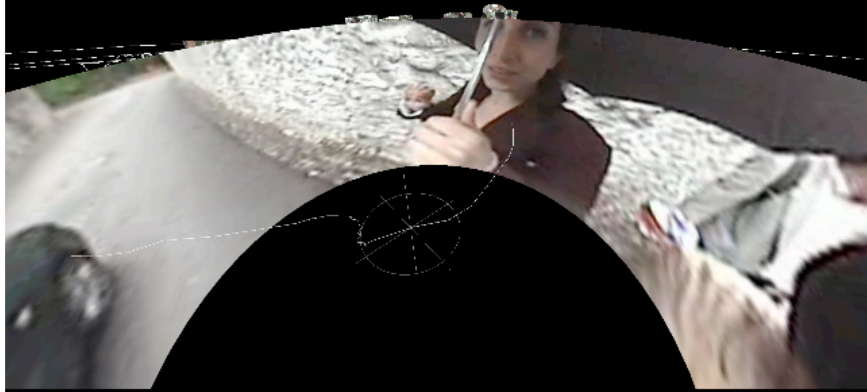
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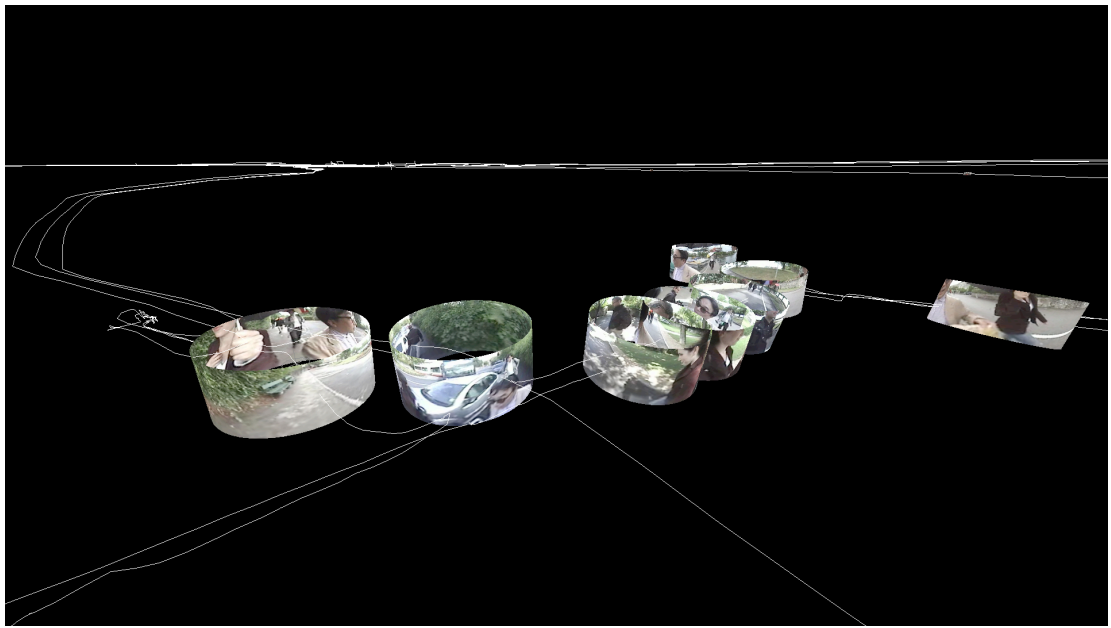
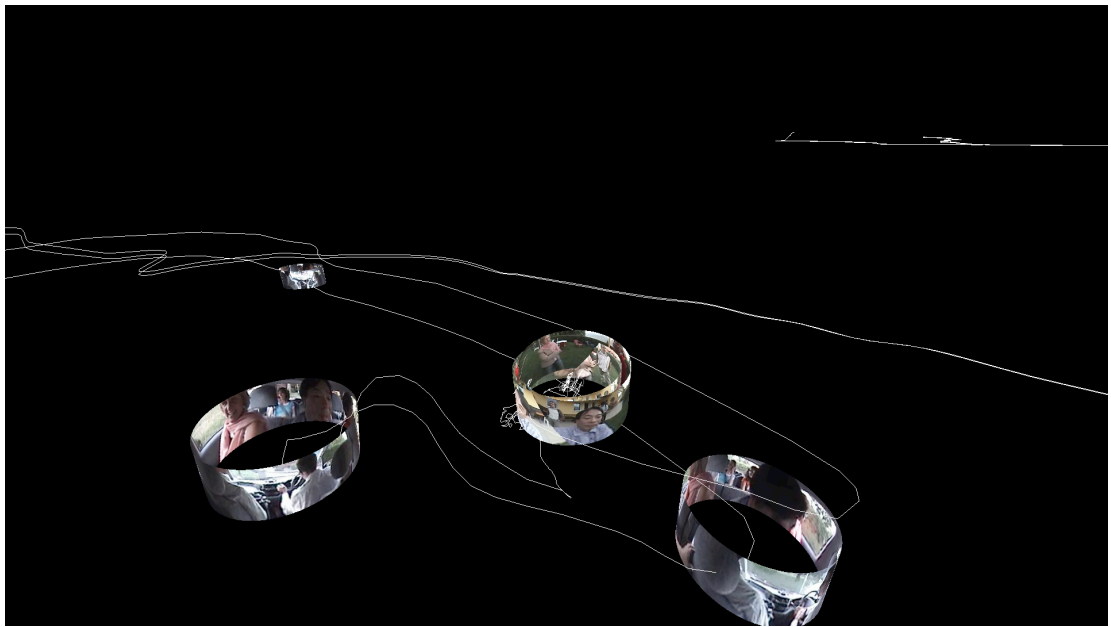
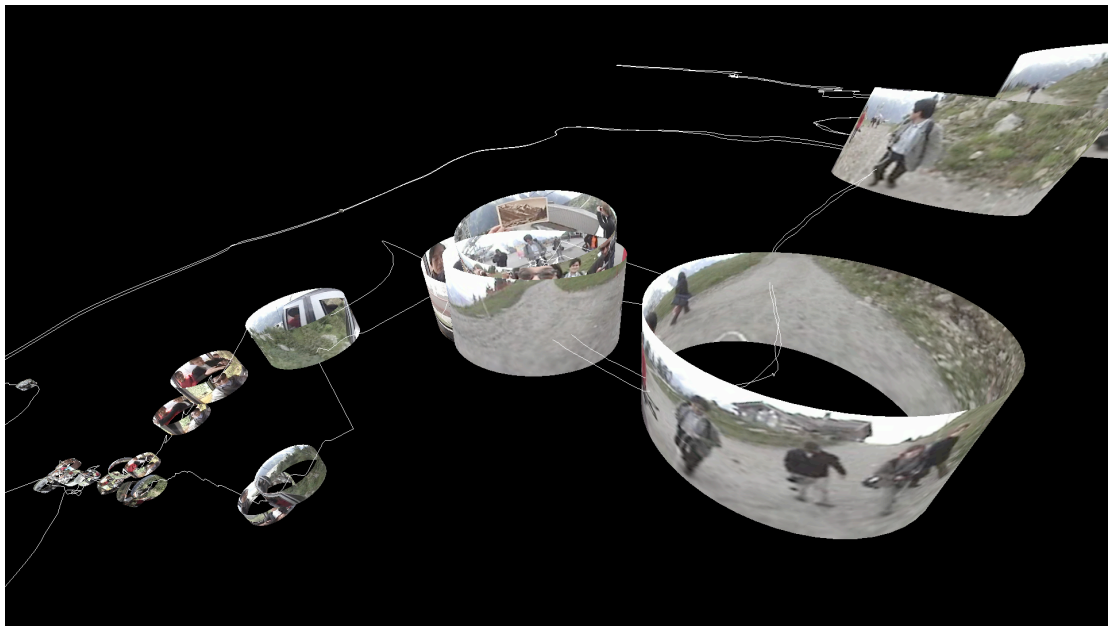
“Landing Home in Geneva” 2005

Project targeted to make interviews with people, who are working as an interpreter or translator moved in Geneva from outside countries. Interviews started from each interviewee’ s home in the city of Geneva and then moved to other places where remind of their home land or the place feel comfortable for him/her.

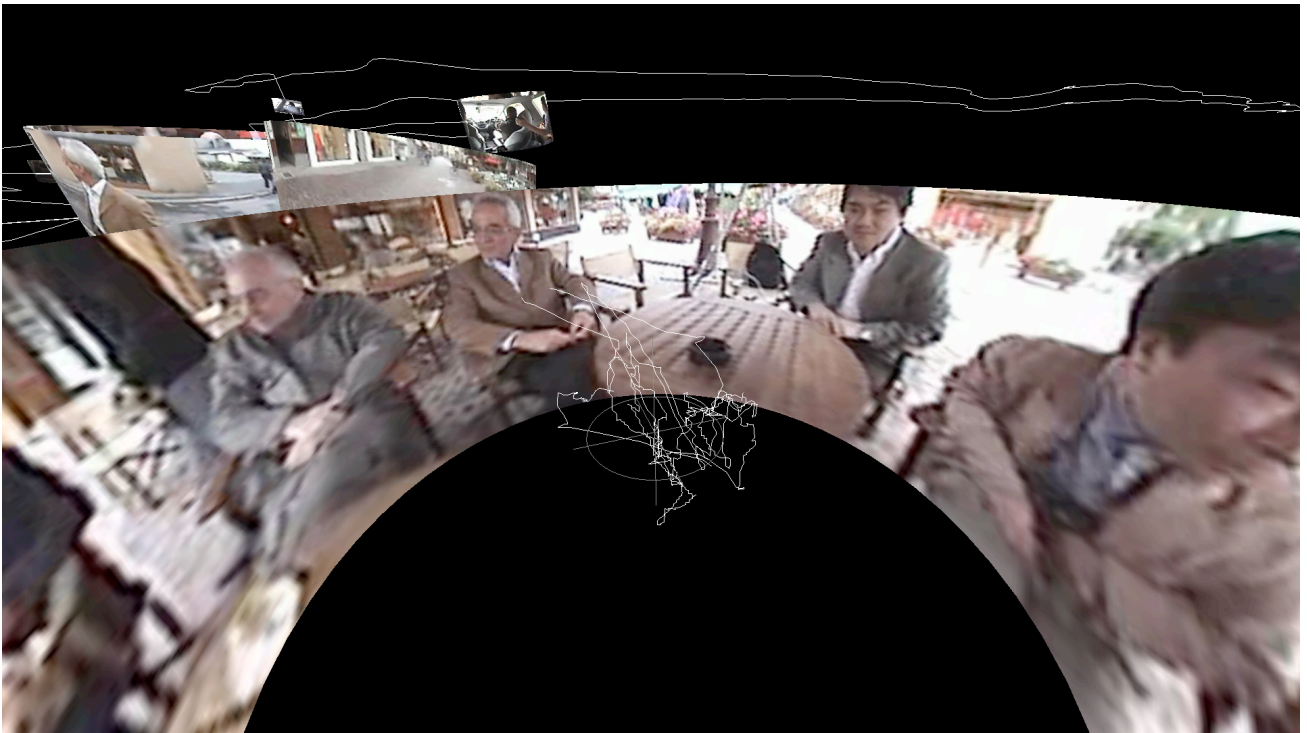
Interviews are done on 4th-10th July 2005

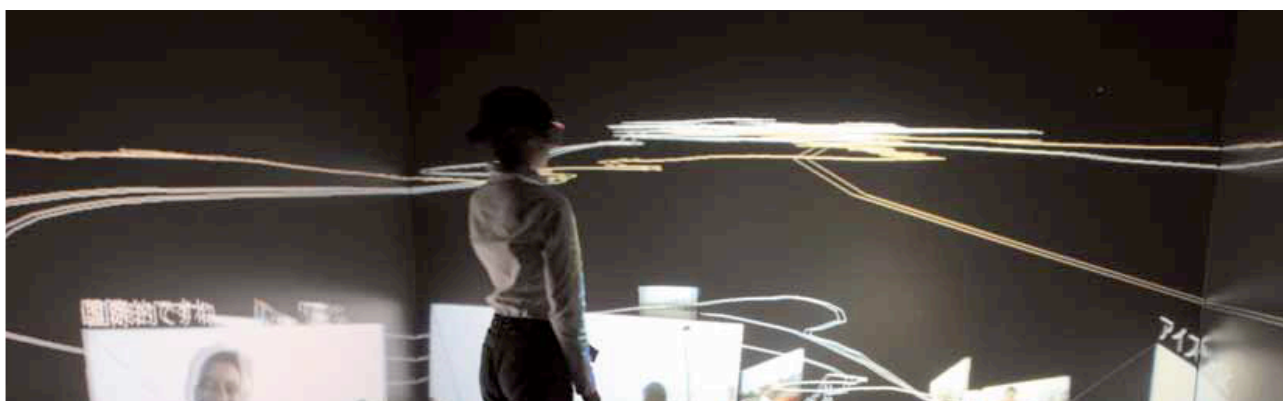
Project realized with Laboratoire Forms de l’ interactivite, Haute ecole d’ arts appliques, Geneva



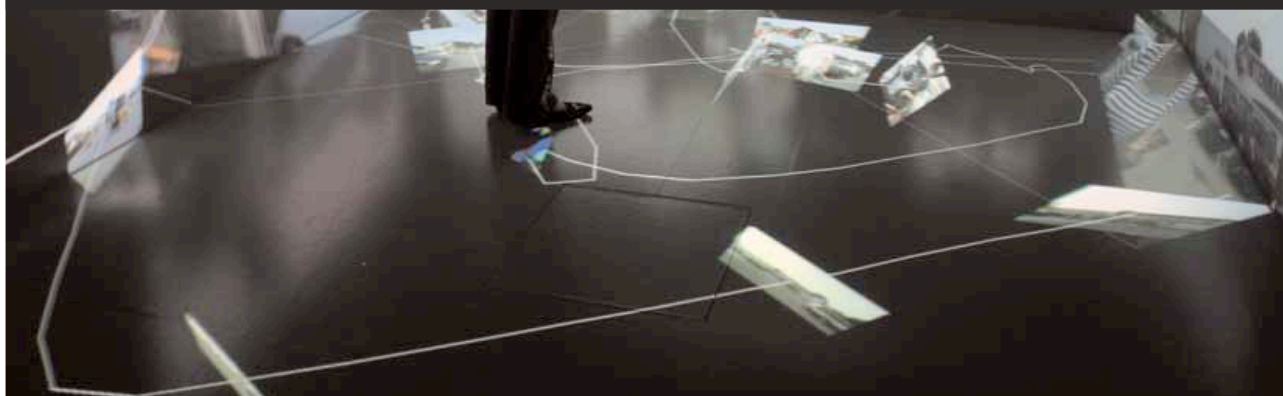








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# Locative Arts

## Drew Hemment

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## Abstract

A discussion of the field of locative arts, focusing on works and interests dating from 2003-4. Provides an overview of the kinds of artistic project found within this field, and considers in depth a number of issues, such as how projects are shaped by their reliance on positioning technologies, and the importance of the social within this area of practice.

## Keywords

Locative media, art, social, mapping, wireless, mobile, ambulant, context

## Bio

Drew Hemment is Director of Future Everything, a non-profit creative company responsible for Futuresonic International Festival; AHRC Research Fellow in Creative Technologies at University of Salford; Project Investigator in PLAN - The Pervasive and Locative Arts Network. Currently working on the interdisciplinary arts-based research project Loca: Location Oriented Critical Arts. Involvement in music events as DJ and/or organiser since 1980s. Projects include Loca (2003-ongoing), Futuresonic (1995-ongoing), Low Grade (2005), Mobile Connections (2004), FutureDJ (2004), Turntable Re:mix (2004), Migrations (2002/3), Blacktronica (2002), Sensurround (2001/2), BrokenChannel (2001) and SenseSonic (2000). Completed an MA (Distinction) at the University of Warwick, and a PhD at University of Lancaster.

# Locative Arts<sup>i</sup>

*The artist: the first person to set out a boundary stone, or to make a mark.*<sup>ii</sup>

When the oceans became navigable following the invention of the chronometer as an on-board ship location device, the view of the Earth and our relationship to it changed, and so did the forms of representation used to express or explore that relationship. The first photographs from the Apollo space missions changed once more the view of the Earth, and produced one of the most iconic, and ubiquitous, images ever produced. Today it is digital and satellite mapping technologies that have caught the attention of a new generation of artists and DIY technologists, who are exploring the use of portable, networked, location-aware computing devices for user-led mapping, social networking and artistic interventions in which the fabric of the urban environment and the contours of the Earth become a 'canvas'.<sup>iii</sup>

All art engages in location to some degree, even if just in the way that it responds to the space created by gallery and frame, or that the found object is marked by the absence of the location from which it was drawn. If a precursor to locative media were to be identified within the art world it might be Richard Long, who creates his art by walking through a landscape, annotating the physical environment he encounters with stones or other ambient materials, and documenting augmented space that results in photographs that provide an esoteric other to the objectifying gaze of cartography or satellite photography.

Locative art is art at the interface of communication networks and location.<sup>iv</sup> Narrowly defined, it might be said to be the artistic off-spring of GIS (Geographic Information Systems), or art involving the use of networked, location-aware mobile media. In another sense, if netart is the art of the internet, then locative art is the art of mobile and wireless: the emergence of locative media signals a convergence of geographical and data space that comes about as soon as computing becomes mobile or ambient, reversing the trend towards digital content being viewed as placeless, only encountered in the amorphous and other space of the internet.<sup>v</sup> The exploratory movements of locative art are located between the art of communications and networking and the arts of landscape, walking and the environment. Artists are responding to the technical possibilities of electronic mapping and positioning technologies, or location-aware, networked media by asking what can be experienced now that could not be experienced before, in some cases creating more-or-less conventional screen based visualizations using location data, in others mapping new horizons for creative content and the art object and a new understanding of the relation between physical and digital.

We might also say that locative art or locative media are less about *positioning* than about the pre-conditions of moving or being able to move. This paper is likewise concerned with the preconditions for a locative art rather than with a set of current projects or artefacts. It is specifically concerned with the period between 2003 and 2004.<sup>vi</sup> At this time locative media was in an embryonic state, everything still up for grabs, a zone of consistency yet to emerge. While artists such as Masaki Fujihata (JP), Teri Rueb (US) and Stefan Schemat (DE) had been producing work we may, with benefit of hindsight, term locative art for many years, in this period there were still only a handful of fully realised locative art works, with many projects remaining in the beta stage if not still on the drawing board. At this time locative art, and locative media generally, were simultaneously opening up new ways of engaging in the world and mapping its own domain. This resonates with Deleuze's and Guattari's sense of territory, in which there is a blurring of the distinction between real estate and intellectual property, between the mapping of physical space and the production of an artistic or cultural milieu: the territory is constituted by the signature or expressive mark, both in the sense that birds use song to map their domain and that the artist creates a new way of seeing and occupying the world.

## A Lazy Taxonomy of Locative Arts

A focus on this period enables us to study the stem cells of locative media and locative arts, and thus refuse closure around a narrow understanding of locative media that has since emerged. To see what such a narrow understanding might consist in, a classification of locative art projects that brings us close to the horizon of many contemporary perspectives might include drawing, user-led mapping, documentary realism, ambulant, critical and geo-annotation. This lists some of the key areas of creative practice in locative media, but does not engage in the underlying motivations of the works. It is useful for initial orientation, a temporary list, one that will not even last till the end of this paper - a lazy taxonomy.<sup>vii</sup>

### Drawing

One approach that has become common is to generate line drawings from GPS data generated by people moving through the physical environment. This basic cartographic technique is widely used in the creation of user-generated maps. GPS Drawing by Jeremy Wood (UK) uses this same technique to create not realistic representations of a town or terrain, but outline images of animals, symbols and words, shifting the focus from

realism or documentation to figurative drawing. These are presented online on the project website, and are sometimes superimposed over a satellite photograph of the site where the data was generated. One example is what Wood describes as “the world’s biggest IF” stretching from the south coast of England to East Anglia - an outline drawing of the word *IF* created by positional data generated during a journey across the country and then superimposed over a photograph of the UK.

### User-led mapping

Where GPS Drawing adopts the conventional form of figurative drawing, a more interesting project is Amsterdam RealTime by Ester Polak (NL). In this early and seminal locative media piece participants roam the streets of Amsterdam equipped with a networked GPS device, and a trace of their movements is relayed to a projection screen in an exhibition space. At the outset the screen is blank, but as the journeys are recorded individual meanderings fuse into a composite representation of how people occupy and use the city, density and concentration recorded in the luminescence of overlapping lines, spaces unvisited remaining dark. While as Eric Kluitenberg has pointed out during the ISEA2004 conference, such composite images generated through successive superimpositions are statistical in nature, the project offers an evocative visual portrait of the life of the city, and a grass roots, collaborative mapping of how urban space is used that offers an alternative to the top down perspective of conventional cartography. A similar set of images were produced at an influential workshop at Karosta in Latvia hosted by the media art collective RIXC - an event that brought together many early practitioners and played an important role in the emergence of the field of locative media.<sup>viii</sup> These images illustrate a visual aesthetic common in such projects - where expression emerges between the cartographic contours in the intricate abstract shapes produced through this mapping technique - while some involve a secondary mapping of error, plotting the accuracy of each GPS reading as the diameter of a circle, generating aleatory tracings that expose the limit of the technical system.<sup>ix</sup>

### Documentary realism

There is a strong current of work that takes a documentary approach, seeking to archive and embed hidden meaning or collective memory, such as the MILK project by Ieva Auzina and Esther Polak (LT/NL) which maps journeys using GPS to explore at once incidental meanderings and international flows, using photography and personal testimonies to delve into hidden substrata of meaning in the journey of milk from cow to consumer. This has led Chris Byrne to examine the relation between locative media and documentary realism, while similarly Michelle Kasprzak has explored how truth and fiction are articulated within locative arts.<sup>x</sup> In some instances - such as the mapping of error found in the Karosta images - this picture is complicated by an ambiguity that exceeds the binary of truth or fiction, even though in that case it is an ambiguity that ultimately reduces to statistical variation.

### Ambulant

Other projects dispense with a screen based representation or gallery presentation, and instead involve walking and moving about. One of the more interesting *ambulant* projects is *.walk* by Wilfried Houjebek's (NL), which draws on psychogeography in a kind of transverse encoding of the city, using simple commands (in an analogue of computer code) to denote a series of movements for participant's bodies, who follow algorithmic patterns around the city, and who alter those algorithms and paths by exchanging numerical data with other participants they encounter. *.walk* is generative in the sense that the consistent application of a simple algorithm continually shuffles the movements of participants with open and unpredictable results. And in creating an intimate and direct relationship between bodies and code it also shifts the focus from mapping or visualisation to performativity - enabling normally hidden operations to be not only brought into view but also performed.

```
// Classic.walk
```

```
Repeat
```

```
{
```

```
1 st street left  
2 nd street right  
2 nd street left
```

```
}
```

Wilfried Houjebek, *.walk*

### Critical

Much like 'tactical media', some projects start from the premise that technology is not 'neutral', and seek to engage in ethical or political concerns. Such an orientation is of particular relevance in locative media because of its uneasy coincidence with commercial and State surveillance, and with the 'military-entertainment complex', a

subject I have explored in *Locative Dystopia*.<sup>xi</sup> A number of 'critical cartography' projects such as Bureau d'Etudes (FR) and They Rule (US) seek to visualise webs of power by mapping connections and lines of influence between corporations or the people that run them, for example. The iSEE (US) website, created in 2001, enabled people to plot routes through New York avoiding surveillance cameras. And Loca, a project I am myself involved in with Mika Raento, John Evans and Theo Humphries (UK/FI), involves tracking and communicating with Bluetooth devices that pass within range of the Loca node network - seeking to distract people in the course of their everyday lives, and expose the disconnect between the mobile user and the digital identities that create an invisible trail behind them.

### **Geo-annotation**

'Geo-annotation' involves authoring media in the environment, and accessing it at that same location. Media contents, digital photos for example, are assigned spatial coordinates, recording the place at which they were taken as metadata (data about data), in the same way that time and date are stored. These photos may be accessed by an enabled device, configured to select digital objects whose spatial coordinates correspond with the device's current location. While the 'true' location of the content is a database, by making it possible to access that content in a particular position - and *only* in that position - its place migrates into the physical environment. This has generated widespread interest for use in everything from museum or city guides to utility company field operations, where it is employed as another means of delivering the same information. Artistic projects such as Geograffiti (CN/UK) and GeoNotes (SE) depart from an epistemological frame measured in terms of truth and accuracy, seeking not to document or interpret the environment but to embellish it with digital graffiti or virtual tagging as expressive mark. The sense that the environment may be annotated and digitally read is further developed in projects such as (area)code (UK) and [murmur] (CN), which enable people to access and author stories, poems or anecdotes via a mobile phone using SMS or voicemail, using not digital positioning technology but simply by advertising an access number on posters located in designated sites. Yellow Arrow (US) adopts a similar low-tech approach, but in this case uses stickers so that participants rather than the project creators can choose where the digital object is placed as well as its content, enabling it to work on a much larger scale without ties to any one particular site. Other projects, such as Urban Tapestries (UK), have sought to create a fully-fledged locative authoring platform, some more complex and unstable than others, and these have been the focus of some interesting social experiments. Such projects explore how multiple layers or threads of meaning may be weaved or inserted within the environment, in a form of collaborative authoring characterised by a multiplication, as well as localisation, of perspective.

Also deserving of consideration are ambient narrative (eg. InterUrban, US), gaming (eg. Asphalt Games, US or Uncle Roy All Around You, UK) and sensory immersion (eg. Come Closer, UK or Teri Rueb's Drift, US). Each of these can be loosely accommodated within this working list, and so for the sake of this discussion shall not be considered as separate classifications. Another that has a strong argument for inclusion is performance. Some projects directly involve performance or performers, such as Myriorama by AmbientTV.NET (UK) and Choreography of Everyday Movement by Teri Rueb (US). Many more feature some element of performance by non performers, whether this be the filmmaker Pete Gomes drawing in chalk outside the ICA in London or the participants in Fujihata's FieldWorks pirouetting while making impromptu sketches. What is of note here is the way that awareness that movement is being recorded, even if this be abstracted to just a line or dot, affects the way people act and move in the present. This does not yet represent a sub-genre either of performance or of locative media, however, and so is not listed as a separate classification.

### **Deconstructing The Grid: *Dis-locative Arts***

Locative art's focus on networking, authoring and accessing creative content within the environment offers the chance to take art out of the galleries and off the screen. This point needs to be tempered by an awareness that, in place of the richness of embodied experience in the world, many projects offer the challenge of roaming the environment while squinting at a tiny screen and clunky menu, separated from the world by a barrier of bad usability. What is more, some locative projects may be 'of the world', but are not 'in the world': their final form is online or gallery based, rather than experienced via mobile devices, or 'old media' such as stickers.

In an important sense this is a false distinction, however. Firstly, even if the final form is screen based the process through which they are produced is commonly located within the - rural or urban, say - environment, typically in the form of workshops involving a small number of practitioners. More importantly, to the extent that the focus is on the dynamic relation between data space (or database) and world it is incidental where the final representation is sited.

The nature of this relationship between database and world is of greater consequence than simply the question of whether the project is sited 'in the world', online or in a museum or gallery. One issue that quickly becomes apparent - and that is an issue across most of the classifications just outlined - is the reliance in locative arts on the clinical precision of digital tracking, and the emphasis on point-to-point correspondence.<sup>xii</sup> Projects that draw

not only on cartographic tools but also on metaphors of mapping tend to aim for a one-to-one correspondence between world and image, between the movements of participants and their screen based representation. Likewise many geo-annotation projects seek a determinate placing or fixing of position, wherein location is unambiguously designated or assigned. In most cases ambiguity - or disruption of machinic precision - arises only in the negotiation of land features and the resolution or granularity of technical hardware. Clinical, clean precision is the limit point of locative art, its realisation and its undoing. While error may introduce sites of disturbance, when reduced to statistics it offers deviation but not disruption of the norm.

Furthermore, locative media often assumes a reductive understanding of spatiality. It encounters the fabric of space-time via an abstract coordinate system, betraying its indebtedness to cartography and GIS, in which location is reduced to a set of geographic coordinates or a wireless cell. In this respect the parallel between locative art and the work of Richard Long gains further resonance with the intervention of Bill Drummond, in which he drew x/y coordinates on one of Long's photographs before cutting out the pieces one by one, pieces which are now circulating in the hands of a thousand new collectors. For locative media's understanding of location often seems to share more in common with that of Drummond than of Long, its transcendent frame of reference and Cartesian space much like the grid marked by Drummond on Long's photograph.<sup>xiii</sup>

Locative art's condition of possibility is a prior abstraction, and as a consequence its emphasis on location is accompanied by a distancing from embodiment, physicality and context, which - within such a reductive understanding of spatiality - become a mere residue of the coordinate system. For locative art to "escape its own axiomatic system" (Trans Cultural Mapping, RIXC) and go beyond simple positioning, it needs to engage in how people's relationship to their environment changes, and to engage not only in location but also in context. It is too simplistic - for all but a minority of projects - to claim that context is reduced to a coordinate point, or that the understanding of place and of being in the world does not extend beyond the pull up display. Rather these might be seen as tools through which context may be encountered, and their use becomes most interesting when the focus is not just upon placing data, but on opening up spaces of ambiguity and play.

One project that moves us towards an engagement in the perspectival and embodied is also in many ways the direct precursor to locative art. Initiated in 1992, and through its many contemporary iterations, Masaki Fujihata's (JP) Field-Works shows how nuance and hidden depth can emerge through the creative use of a technology designed to impose a rigid cartographic grid upon the world, going beyond simple documentation to open a rich space of contextual and aesthetic meaning. Through a juxtaposition of location data captured by GPS and moving image captured by video it similarly aims to articulate local narratives, while also excavating a sense of parallelism in the universe on a human scale. Field-Works stretches and pulls at the coordinate system, in the same way that dancers play with shifting the centre of gravity of the body to create a kind of distortion in the fabric of space-time. This is firstly achieved simply by introducing multiple view points. Secondly, by using a camera mounted gyroscope to translate even the intimate movements of the physical gaze as a part of the resulting work, the video frame - viewed moving along a GPS trace - shaking and turning to correspond to unsteady motion of the camera during filming. And, in earlier versions of the project, a subversion of the Cartesian grid was effected by representing the physical terrain as a function of the speed at which it is encountered, in one iteration the shape of Mount Fuji becoming distorted, the same slope shown to be longer going up than when going down. Furthermore, while Fujihata's own focus is very much on the final and realised piece, the impromptu sketches made by participants in Field-Works highlight the fact that what is at stake is not only producing artistic works that can be shown in a gallery context, but also the embodiment and performativity of the participants involved in generating the works.

A similarly complex and multi-layered project is Choreography of Everyday Movement by Teri Rueb (US). In this piece Rueb works with classically trained dancers to explore the poetics of the urban body, placing emphasis upon the participatory spaces occupied by the participants, as well as upon the distance between world and its representation. It too incorporates GPS traces in the final gallery based representation, but here they are inscribed in sheets of Perspex, which are then layered to create a kind of Rorschach image, opening up a plurality of interpretation. The longitude/latitude coordinates are deliberately removed - "The performer is only visible as an ant-like dot crawling across the screen. Movement and physical presence are reduced to the most basic abstraction".<sup>xiv</sup> Here we are reminded of Lev Manovich's identification of radar as that which epitomises the use of linear perspective to map and identify objects and spaces: "radar is the best example of the rationalization of sight in the twentieth century. ... [A] radar operator sees a screen, a dark field with a few bright spots. Here the function of visual nominalism ... is isolated and abstracted".<sup>xv</sup> Just as radar can be said to clarify and condense the function of modern visual surveillance technologies, so Rueb takes the real-time abstraction of movement to an extreme at which its limit is revealed, the cartographic function left bare. Choreography illustrates how - as a data based form - locative art brings the coordinate system itself into the frame, as the material upon which it works.

Achieving a similar effect from a very different approach is Location, Location, Location (2004) by Pete Gomes (UK). This saw Gomes walking and drawing within a 1km squared area in London, taking GPS readings and

annotating the urban environment in chalk. In some cases numerical readings of position or time were drawn at sites where Gomes encountered objects or events, in other cases chalk lines following longitude or latitude were drawn on and in some cases even through buildings. This project, and related works by Gomes such as SE8 v1.0 (2004), inscribes the cartographic grid on the city, making an idealised Cartesian space manifest. But it does so only then to reassert the transient, material and everyday. The drawings are temporary, quickly washed away by rain. In the impossibility of continuing a true grid line at street level, the project highlights the opacity of bricks, mortar and lived space. And in the way it is experienced by an audience moving through the city, it foregrounds not the omnipresent perspective of satellites circling overhead, but a partial and incomplete perspective at ground level.<sup>xvi</sup>

In a sense a questioning of the transcendent grid might be said to be already at play in GPS Drawing, the positioning function of GPS and the abstraction inherent in it both highlighted and subordinated to the expressive figure or trace. But Rueb and Gomes make the abstraction explicit, and shows how, in bringing the cartographic system into view, a creative and critical stance to it becomes possible. In neither case is there an attempt to *overcome* the cartographic grid, by, for example, asserting the primacy of embodied experience (even though this figures in both projects). Instead they set out to mark its limit, and in highlighting the play at the edges, the accidental and transient, they deconstruct the dualism inherent in positioning technologies and bring cartography down to earth.

Other projects shift the focus away from position towards proximity or relationality, thereby opening up an understanding of context as open and constantly shifting rather than static or to do with determinate correspondence. In Hlemmur in C by Pall Thayer (IS) two taxis equipped with GPS and their base at the Hlemmur bus terminal in the Reykjavik are each represented with a middle C note. While the sound attributed to the base remains constant, the pitch associated with the taxis varies according to their distance from the base, creating instability in the tone. This piece also involves a visual mapping component, but is most interesting in the way that relationality is registered as dynamic tension in the sound, an other auditory space. Aura by Steve Symons (UK) is a virtual sound environment accessed by walking through a space equipped with GPS and digital compass. Individual users can “hear” the location of other participants, and influence the sound environment through their relative movements. Similarly Sound Mapping by Iain Mott (AUS) is an installation in which participants realise a composition by wheeling four movement-sensitive suitcases within a public place, with the “aim to assert a sense of place, physicality and engagement to reaffirm the relationship between art and the everyday”.<sup>xvii</sup> Three of the cases contain odometers measuring wheel rotation in both directions as well as two gyroscopes measuring tilt and azimuth, and they are linked by data radio transmitters to a fourth case equipped with GPS. While much work with GPS is limited by its low resolution - the nuance of embodied experience exchanged for a blunt on/off switch every few metres - Sound Mapping produces music in response to nearby architectural features, subtle movements and gestures, and the absolute and relative movements of the participants. By engaging in relationality and embodiment as well as in place it offers a rich vision of how participants may both respond to and shape their environment. These same variables are also the focus in the Oscillating Windows workshop series by Katherine Moriwaki (US), where the focus shifts from sound to data networking, and looking at how patterns of proximity and co-location emerge amongst participants relaying information across ad-hoc networks with no fixed centre, but rather multiple, mobile nodes.<sup>xviii</sup>

If such projects move us away from simple positioning, often embodying an implicit critique of it, Biomapping by Christian Nold (UK) embraces it. This project is significant for the way it introduces the body and embodiment into locative media. Biomapping measures galvanic skin response - using a customised device of the kind used in lie detector tests, combined with GPS - to record anxiety and stress levels of participants as they move through the city. Here the body is brought into the equation only to be abstracted and left behind: Nold works with a conventional screen-based mapping format, with readings plotted on to a map in the same way other projects record a visual trace of movement, resulting in an aggregated, visual record of changes in stress level. And yet, while Biomapping consists in a simple mapping of anxiety against position, it functions on other levels also. The composite images mirror the way Amsterdam RealTime reveals the idiosyncrasy of how urban space is used. And there is a reverse movement in the way that people respond to readings - their own or those of previous participants - this shaping their movement through the city.<sup>xix</sup> From the perspective of the user roaming the city it prizes open a space between the physical environment, networks and the body. It offers a different way of encountering the city, and of one's relation to it, where the low-cost, DIY aesthetic of the Biomapping device becomes more significant than the accuracy of its representation of physiological data.

## Other Geometries: Relational and Social

One trajectory that may be discerned within locative arts - that perhaps offers more insight than the 'lazy' taxonomy above - runs from realism and documentation (conventional maps, city guides) to expression (figurative drawing, digital graffiti) to the collaborative and social (collaborative maps, social authoring). In broad terms this mirrors a similar trajectory in locative media generally, identified by Ben Russell amongst others, from

the spatial to the social.<sup>xx</sup> And it may be situated alongside a broader blurring of the distinction between art and the social today, which marks a departure from conventional understandings of the place of the artist in Western culture, and in particular the post-Enlightenment understanding of the artist as apart from society.

An emphasis on the social is likewise found in Nicolas Bourriaud's understanding of *relational art*: "an art taking as its theoretical horizon the realm of human interactions and its social context, rather than the assertion of an independent and private symbolic space".<sup>xxi</sup> The kind of relationality involved in projects such as Hlemmur in C and Body Mapping is primarily geometric and spatial, and where social and interpersonal relations occur they are spatially coded. Another kind of 'relationality' arises through the overlapping of different kinds of mapping - geographical maps, social network maps, node maps, etc. Something a little closer to Bourriaud's understanding may be seen in locative art projects that do explicitly engage an audience in a social space or process. When they do so, however, they tend to offer something different to the gallery-centric, white cube sociality proposed by Bourriaud, for where relational art projects tend to be staged and exceptional, locative arts are more often implicated in the everyday, even if only in their willingness to address non-art contexts.

Park Bench TV by Pete Gomes, involves a park bench with free Wi-Fi access, plus a chat forum and local TV channel that anyone with a wireless enabled laptop has access to. The bench served as a physical metaphor for the wireless node, and a focal point for local content, but also brought users into physical proximity and - by the layering or coincidence of different types of location: inner city park, bench, internet chatroom - produced an uncertain and incongruous social space.<sup>xxii</sup> This project also prefigures a wider trend towards Free Networks becoming portals to a local environment or community - as championed by Île Sans Fil in Montreal, for example - rather than just access points to an undifferentiated bandwidth. Another project, Life: A User's Manual by Michelle Teran, both creates a similarly equivocal social space, and highlights an absence of the social. Teran walks the streets equipped with a scanner and a monitor - in one iteration wheeling them along in a shopping trolley - picking up feeds from CCTV cameras she passes, which are visible on her mobile screen. Her solitary intervention serves as a metaphor for the alienation of the surveilled subject, but in intercepting the signal she also creates a counter-site and invites people in: audience, passers by, and on occasion employees of the companies operating the cameras.

Another project that does not involve positioning technology and yet is about location is WiFi-Hog by Jonah Brucker-Cohen (US), an application that allows an individual to take control over a public access wireless node from their laptop, by logging off all existing users and controlling who can subsequently log on, creating localised and temporary user groups, while also highlighting how limits can be placed upon the supposed panacea of openness and accessibility. Mobile Clubbing (UK) and Radio Ballet by LIGNA (DE) are a kind of wireless flash mob, in which people converge in a public place - mobilised in advance by email or text - do something out of the ordinary, and then disperse. Radio Ballet, described by the group as an 'exercise in unnecessary loitering', involves a choreographed and orchestrated performance guided by audio broadcast over a free network. It creates a happening or event at variance with the every day, functional use of space, and in so doing brings the social norms that govern our use of public space into view. These projects - like Life: A User's Manual and Oscillating Windows - offer a view of locative art as something more than spatial representation. Indeed, they fall outside a narrow definition of locative art or locative media. And yet they illustrate how spaces that are both social and other can be opened at the interface of communication, location and the body.

Whereas 'mixed reality' posits the virtual and physical as layered or intersecting, these projects suggest that something else can be produced in between. In locative media projects we find a fold between virtual and physical, data space and geographical space. In some cases, such as Houjebek's generative walk or Gomes's park bench, these folds do not just mix realities but produce a reality of their own. To the extent that they represent a standing out from a normalised construction of space they might be said to be counter-sites. They - like Foucault's understanding of heterotopias, or other places - place all other sites into question.<sup>xxiii</sup> This is clearly the case in Radio Ballet, but it might also be metaphoric as much as literal. We might for example ask how the intensity in luminescence in Amsterdam RealTime, or the trace of embodiment in Biomapping, might be said to constitute a heterotopic image, an image of an other place, rather than a representation of the real. And likewise we might ask of geo-annotation projects how they open an other space, which is not the same as providing more sophisticated interpretive tools.<sup>xxiv</sup> Then we might be able to claim of locative media what Foucault says of ships: "The ship is the heterotopia par excellence. In civilizations without boats, dreams dry up, espionage takes the place of adventure, and the police take the place of pirates."<sup>xxv</sup>

Much current interest is concerned with the interface between locative media and social software, the semantic web or web 2.0. Metaphors abound such as 'A programmable and machine readable world', 'People search engines', 'Social interfaces to places', 'City as canvas or medium', 'Person as cursor in the city'. There is a strong current of social projects within locative media, and a DIY technology culture has grown around that, part of a wider space that includes CopyLeft, Open Source, Free Networking, etc. Whether a project is positioned as social or as art, the aim can be about opening up possibilities or sites of play, more dissociative than simply establishing a continuity or equivalence. Equally, however, the motivation all too often is simply making the world

more transparent, the ability to fix associations, creating an environment that is navigable and known. Following Foucault we might say that is to mistake espionage for adventure.

The straightforward geo-annotation of space - placing data in geographical space - can be seen as an instance of what Deleuze has termed emplacement, which he distinguishes from "*haecceities*", or "concrete individuations that have a status of their own and direct the metamorphosis of things and subjects".<sup>xxvi</sup> These have the kind of individuality we find in seasons or dates, as opposed to subjects or things, and "consist entirely of relations of movement and rest between molecules or particles, capacities to affect and be affected".<sup>xxvii</sup> Locative arts offer the possibility of a form of individuation that is as distinct from clinical positioning as locative media's social projects are from cellular advertising. When, on the other hand, locative media hides behind the console of positioning systems an abstract mode of individuation results. For locative art to exceed the sterile precision of its own axiomatic system it needs to act upon or through material bodies and substances, engage in the ambiguity, dirt, sweat and smells of the world, and acknowledge "the importance of rain, hail, wind, pestilential air, or air polluted by noxious particles, favourable conditions for these transports".<sup>xxviii</sup> Then locative arts come to be seen not as distanced from the world but as offering a potential for transformation and engagement, opening up other places, contents circulating through location aware networks producing a field of relations and affects.

Drew Hemment, August 2004, revised December 2005.

## Links

Field-Works by Masaki Fujihata  
<http://www.field-works.net/>

Teri Rueb  
<http://www.terirueb.net>

Stefan Schemat  
<http://www.schemat.de/>

GPS Drawing  
<http://www.gpsdrawing.com/>

Amsterdam RealTime by Ester Polak  
<http://realtime.waag.org/>

Locative Media Workshop at Karosta, Latvia  
<http://locative.x-i.net/>

RIXC  
<http://rixc.lv/>

MILK by Ieva Auzina and Esther Polak  
<http://locative.x-i.net/piens/>

Chris Byrne  
<http://www.mediascot.org/>

Michelle Kasprzak  
<http://michelle.kasprzak.ca/>

.walk by Wilfried Houjebek  
<http://www.socialfiction.org/dotwalk/>

Bureau d'Etudes  
<http://bureaudetudes.free.fr/>

They Rule by Josh On & Futurefarmers  
<http://www.theyrule.net/>

iSEE by Institute for Applied Autonomy (I.A.A.)  
<http://www.appliedautonomy.com/isee/info2.html>

Loca  
<http://www.loca-lab.org>

Geograffiti  
<http://www.gpster.net/geograffiti.html>

GeoNotes  
<http://geonotes.sics.se/> (Site down at time of publication)

(area)code by Jen Southern & centrifugalforces  
<http://www.areacode.org.uk/>  
<http://www.blinkmedia.org/blinkmedia/area.htm>

[murmur]  
<http://murmurtoronto.ca/>

Yellow Arrow  
<http://yellowarrow.org>

Urban Tapestries  
<http://urbantapestries.net/>

InterUrban by Jeff Knowlton, Naomi Spellman & Jeremy Hight  
<http://interurban.34n118w.net/>

Asphalt Games  
<http://www.asphalt-games.net/>

Uncle Roy All Around You by Blast Theory

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<http://www.uncleroyallaroundyou.co.uk/>

Come Closer by squidsoup

<http://squidsoup.org/comecloser/>

Myriorama by AmbientTV.NET (UK)

<http://www.ambienttv.net/4/myriorama/>

Location, Location, Location (2004) by Pete Gomes

<http://www.mutantfilm.com/wireless/>

<http://www.locative.net/tcmreader>

Hlemmur in C by Pall Thayer

<http://130.208.220.190/hlemmC/>

Aura by Steve Symons

<http://muio.org/>

Sound Mapping by Iain Mott

<http://www.reverberant.com/>

Biomapping by Christian Nold

<http://www.biomapping.net>

Oscillating Windows by Katherine Moriwaki

<http://www.kakirine.com/windows>

Park Bench TV (2003) by Pete Gomes

<http://www.mutantfilm.com/parkbenchtv/>

île Sans Fil (Wireless Island)

<http://www.ilesansfil.org>

Life: a user's manual by Michelle Teran

<http://www.ubermatic.org/life/>

WiFi-Hog by Jonah Brucker-Cohen

<http://coin-operated.com/>. See also [http://www.futuresonic.com/futuresonic/mobile\\_connections/](http://www.futuresonic.com/futuresonic/mobile_connections/).

Mobile Clubbing

<http://www.mobile-clubbing.com>. See also [http://www.futuresonic.com/futuresonic/mobile\\_connections/](http://www.futuresonic.com/futuresonic/mobile_connections/).

Radio Ballet by Radio Ligna

[http://www.ok-centrum.at/english/ausstellungen/open\\_house/ligna.html](http://www.ok-centrum.at/english/ausstellungen/open_house/ligna.html)

(Websites accessed December 2005.)

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## Endnotes

<sup>i</sup> This is a revised edition of a paper written in August 2004 originally published in the proceedings of *ISEA2004: The 12th International Symposium on Electronic Art*, 14th-22nd August 2004 <http://www.isea2004.net/mainframe.php?id=proceedings>. (Accessed December 2005). The new version of the text does not undertake to provide an overview of all locative art projects produced since August 2004.

<sup>ii</sup> Gilles Deleuze and Felix Guattari, *A Thousand Plateaux*, trans. Brian Massumi, Minneapolis (University of Minnesota Press, 1987) p. 316.

<sup>iii</sup> Chang and Goodman (US) have argued that location can be viewed not as canvas but as *medium* ('Asphalt Games: 'Enacting place through locative media', in D. Hemment (ed.), *Locative Media Leonardo Electronic Almanac Special Issue*).

<sup>iv</sup> 'Locative art' is here understood as those areas of locative media that are predominantly arts-based. Much interesting work happens on the boundary, and this term is intended to contribute to discourse on locative media, not to set up any kind of opposition.

<sup>v</sup> Location and context are central to the mobile and wireless experience. A wireless or mobile art might also be concerned with, say, the potential of interfaces unfettered by wires and cables for performance or interaction.

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<sup>vi</sup> In particular between the influential Karosta workshop organised by RIXC in July 2003 and the Mobile Connections exhibition at Futuresonic in May 2004.

<sup>vii</sup> My use of the word lazy is part serious part joke. It references the fact that there is a narrow understanding of locative media that is inhibitive. And also that this paper does not pretend to offer an exhaustive overview or classification of locative arts projects. A lazy taxonomy might yet one day become a living taxonomy.

<sup>viii</sup> Much of the early discourse around locative media, in Europe in particular, was forged in art contexts, from the RIXC Locative Media Workshop (K@2, Karosta, 2003), to next5minutes (Amsterdam, 2003) and Futuresonic (Manchester, 2004). Other significant events include the O'Reilly ETech, UbiComp and PLAN conferences. Despite the trend we have seen towards the collaborative and social in locative arts, the arts context is not going to be appropriate to every project, and more recently there have been some attempts to create spaces free of the arts gene. The term 'locative media' was coined by Karlis Kalnins (CA) in 2003.

<sup>ix</sup> Thanks to Ben Russell for his comments on the Karosta images.

<sup>x</sup> These points were explored at the Tracing Space panel, ISEA2004, Helsinki, 20th August 2004. <http://www.isea2004.net>. (Accessed December 2005).

<sup>xi</sup> Drew Hemment, "The Locative Dystopia." 2004. (Originally published in nettime: Fri, 9 Jan 2004 18:23:20 +0100 (CET)) and "Locative Dystopia 2" in Ed. Marc Tuters + Rasa Smite, *Acoustic Space: Trans Cultural Mapping* (Riga: The Center for New Media Culture RICX, 2004).

<sup>xii</sup> The issue is not the accuracy or granularity of the technical system employed. Most tracking systems used are anything but precise, as the Karosta images illustrate. Different systems have different granularity or resolution, ranging from sensor networks (high) to cell based location data from mobile phones (low), and this will vary depending on the context: GPS, for example, is unreliable in built up areas.

<sup>xiii</sup> This view of an endless grid that extends across the Earth found iconic form in Superstudio's The Continuous Monument project (1969). More recently, Andrew Wilson from Blink has argued "Wirelessness is not a grid laid across the world. Wirelessness is clusters and gaps." Ultrasound conference, 2004, <http://www.ultrasound.ws/archive/2004/index.html> (accessed December 2005).

<sup>xiv</sup> Teri Rueb, <http://www.terirueb.net/>. (Accessed December 2005).

<sup>xv</sup> Lev Manovich, 'Modern Surveillance Machines: Perspective, Radar, 3-D Computer Graphics, and Computer Vision,' in *CTRL [SPACE]: Rhetorics of Surveillance from Bentham to Big Brother* (ZKM, Karlsruhe/The MIT Press, Cambridge, Massachusetts, 2002) p. 386

<sup>xvi</sup> Pete Gomes, 'Signage for Invisibility', in Marc Tuters & Rasa Smite (eds.), *Acoustic Space: Trans Cultural Mapping* (Riga: The Center for New Media Culture RICX, 2004) pp.175-77. Also available online <http://www.locative.net/tcmreader/index.php?locarts:gomes>. (Accessed December 2005).

<sup>xvii</sup> Iain Mott, <http://www.reverberant.com/SM/>. (Accessed December 2005).

<sup>xviii</sup> See also UMBRELLA.net by Katherine Moriwaki and Jonah Brucker-Cohen (US).

<sup>xix</sup> This side of the project will become more prominent in Version 2.0 developed during the PLAN workshop in Nottingham during October 2005 that enables participants to view the data in real-time via a mobile device. <http://www.open-plan.org>. (Accessed December 2005).

<sup>xx</sup> Ben Russell (UK) is a seminal figure within the field of locative media, author of Headmap Manifesto (1999, <http://www.headmap.org/headmap.pdf>, accessed December 2005) a text widely recognised as providing a blueprint for wireless location aware devices, and one of the founders of the Locative Media Lab (<http://www.locative.net>, accessed December 2005) a highly influential group during 2003 and 2004 which also included Marc Tuters (CA) and others.

<sup>xxi</sup> Nicolas Bourriaud, *Relational Aesthetics* (Paris: Les Presses du Reel, 2002).

<sup>xxii</sup> A similar approach has been taken by Yellow Chair (2005) by Anab Jain (IN/UK), <http://anab.in/yellowimages.html> (accessed December 2005).

<sup>xxiii</sup> Foucault, M., Of Other Spaces. *Diacritics*, Spring 1986, p. 22-27. Mine is in some ways an unconventional reading of heterotopia; it is, however, in the spirit of Foucault's text.

<sup>xxiv</sup> There may be many kinds of heterotopia. Jen Southern and Jen Hamilton found during a residency at Creative Mworldan Creadigidol, Cardigan, that the inconsistencies in GPS readings they encountered during walks out in the hills were very much like the inconsistencies in subjective experience of walking, when we often lose time, switch off, suddenly find that we have progressed a certain distance with no memory of having traversed it.

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Jen Southern & Jen Hamilton, 'The aesthetics of walking in place' a seminar presentation at May You Live In Interesting Times, Cardiff Festival of Creative Technology, 28 October 2005.  
<http://www.mayyouliveininterestingtimes.org> (Accessed December 2005).

<sup>xxv</sup> *Ibid.*, p. 27

<sup>xxvi</sup> Gilles Deleuze and Felix Guattari, *A Thousand Plateaux*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987) p. 261.

<sup>xxvii</sup> *Ibid.*

<sup>xxviii</sup> *Ibid.*

## パラレル・リアリティ

藤幡正樹

## Parallell Realities

FUJIHATA Masaki

Translation: Alfred BIRNBAUM

## スクリーン・イン・スクリーン

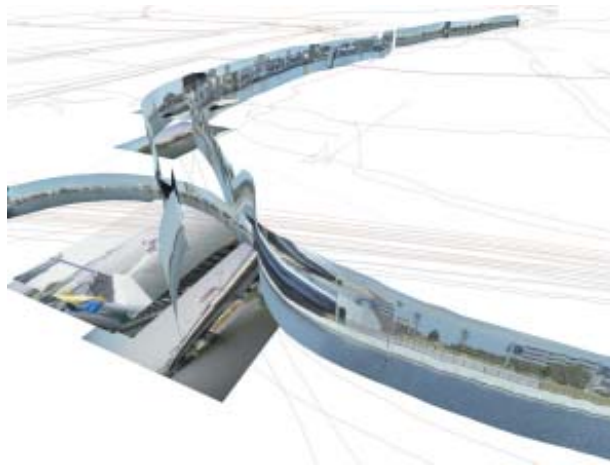
われわれの肉眼が見ている世界には<sup>フレーム</sup>枠組みが存在しないかのように見えるのは、認知的なレベルでのプログラムが脳のソフトウェアになされているからだ。眼球によって見ることでできる範囲は、当然のことだが、限定されているにもかかわらず、その境目は意識されないようになっていて、不明解である。それに対して、あらゆる人工的な画像が、四角いフレームによって切り取られていることは象徴的である。しかも、そのほとんどが、完璧な平面によって構成されている。いわゆる映画のスクリーンというもの、ピンと張りつめた平面でなくてはならないのだが、それはいったいなぜだろうか？ ひとつの回答は技術的なもので、光学的にレンズを用いて画像が投影される時には、画像の焦点が問題になる。焦点がすべての画像領域にわたって合っていないければ、それは画像として認識することができなくなるからである。ピントの合っていない映画が上映されている映画館では観客はスクリーン布そのものを見ることになる。ふたつめの問題は鑑賞者とスクリーンの関係にある。すべての鑑賞者がスクリーンの中央に立つことは不可能であるから、ほとんどの鑑賞者は、おのずと斜めに歪んだスクリーンを見ているのであるが、それでも大きな問題が起きないのは、われわれの脳がそれを補正しているからである。台形に歪んだスクリーン

の枠を見ながら、それを四角い映像として認識するためには、スクリーンはできるだけ完璧な平面であることが望ましいのである。投影された映像のピントの問題とスクリーンが必要とする平面性の問題は、仮想のスクリーンを脳内に発生させるために必要不可欠な技術的な要素であるのだ。

スクリーン・フレームの内側に、さらに仮想の映像フレームを設置する実験を行なうと、このことはもっとはっきりする。縦横の比率が多少歪んでも、あるいは三次元的に奥行きをもった形のフレームを大きなフレームの内部に設定しても、われわれの脳は何不自由なくそれらのスクリーンのフレームを経由してその内部に投影されている画像を理解することができるのである。コンピューターのデスクトップで、クイックタイム・ムービーを見ているときにも同様のことが起こっている。小さなスクリーン・サイズの画像でもそこに集中すると画像のサイズや比率は特に問題ではなく、われわれの脳は複雑な三次元の座標変換を行ないつつ、内容を理解することができてしまうのだ。

## 主観の映像と客観の映像

四角く切り取られた映像の内部での出来事に対して、もちろん脳は三次元的な空間把握を行ない、そこに展開されている出来事に自身の姿を含め込もうとすることがで



藤幡正樹 (Field-Works@Matsue — 穴道湖に絵を描く) 2002年7月28日  
 パノラマ状になっている画像は、船の右舷、あるいは左舷に設置されたビデオの動画像をもとに作成された。湖面上にフラットになっている画像は、KDDI製GPS + Camera携帯電話から送られてきた画像を当日リアルタイムで貼りつけていったものである。  
 © FUJIHATA Masaki

### Screen-in-screen

The world we see with the naked eye appears without any framing because the cognisance-level software of our brain is so programmed. For although the extent of what can be seen by the eye is of course limited, those bounds are unregarded and unclear. By contrast, all artificial imaging is distinctly "cut out" via rectangular frames. Not only that, most are laid out perfectly flat. But just why do these "movie screens" have to form such taut planes?

One answer is technical: when using optical lenses to project images, focus becomes a paramount issue. The focus must be consistent over the entire image area (picture plane) for the image to be recognisable. When a cinema shows films out-of-focus, viewers find themselves looking at the screen itself instead of watching the film.

A second factor is to be found in the relationship between the viewer and the screen: as it is impossible for all viewers to face the exact centre of the screen — most have to content themselves with viewing a more-or-less distorted screen from oblique

angles — the biggest problem becomes compensating for that distortion in our brain. To facilitate correcting the trapezoidal screen frame into a rectangular image, a perfectly planar-focused screen is ideal. Thus issues of image focus and requisite screen planarity dictate ineluctable technical conditions for generating an imaginary screen in the brain.

Experiments in placing such imaginary image frames within the screen frame make this even more clear. Even if the vertical-to-horizontal pictorial ratio varies somewhat, even if a frame with three-dimensional depth is circumscribed within a larger frame, our brain easily manages to reroute perceptions through the screen frame to grasp the image projected inside. Just like watching a QuickTime movie framed within a larger desktop frame. However small the screen, so long as we concentrate on the image, neither the size nor proportions seem to matter; our brain carries out complex three-dimensional coordinate conversions to make sense of the contents.

### Subjective and objective images

However distorted the screen, we can recognise

きる。事実に対する客観性を剥奪して、映像世界へ没入させるのである。そうでなければ、人は駅に到着する蒸気機関車を見て、慌てて客席から立ち上がったりはしない。

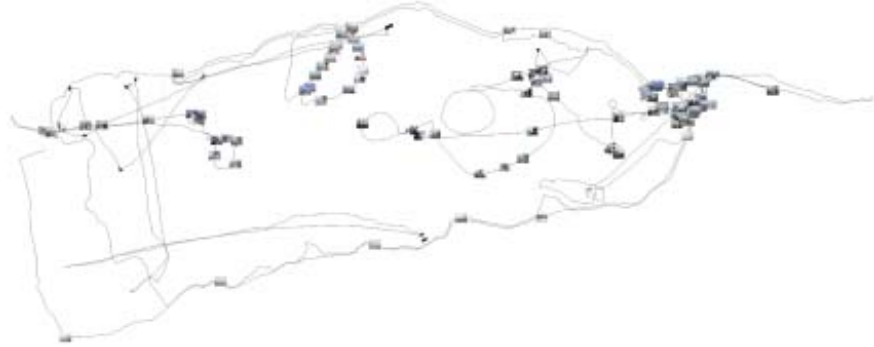
たとえスクリーンが歪んでいたとしても、そのなかの出来事をわれわれは三次元的な空間での出来事であると認識することができる。その映像が映し出す世界に想像力をもって入り込むことさえできるのだ。かつてリュミエール兄弟が公開した蒸気機関車が駅に入り込むフィルムは、上映されると観客が総立ちして逃げ出したそうである。二次元のしかも白黒の映像でさえ、三次元空間を出現させるには十分であったのである。映画を見る客観としての観客が映画のなかに入り込んで主観的世界を生きるようになってしまうのである。

だから、私が知る限り、もっとも単純な方法で、意図的にこの約束違反を見せて見せた監督は、チャーリー・チャップリンである。他の俳優には許されていないのだが、唯一彼だけが、映画のなかでカメラに向かって視線を送ってくるのである。これには驚いた。自ら主演する映画という虚構のなかから観客という現実に向かって、監督という主観が一本の糸を切り結ぶという約束違反である。映画は虚構であるが故にそれを記録するカメラの視線は徹底した客観でなくてはならないはずである。だから普通の映画では俳優は観客を見つめたりしない。このルールを破

ることは、虚構としての映画、作り話としての映画を否定した、いわゆる映画とは異なった分野へ入り込むことを意味するわけだ。

逆に個人が撮影するビデオは主観の連続であるといえる。ビデオは、私がそこにいたこと存在証明のためだけに使われていると言ってもいいかもしれない。子供の成長記録や訪れた観光地の風景などは、個人の主観的世界の記録である。ところが、主観的映像を見るという行為は、撮影者の主観を空想するという作業を見る者に強いる。他者のリアリティーのなかに入り込むことで、他者の思考を自分の思考として体験することを強いられるのだ。たとえば、子供の運動会のビデオなどで、カメラが突然左にパンしたとする、それは撮影者の意識が急速に左の方に移ったことを意味し、見る側はその理由を理解しようとすることになる、ということであるが、ここで理由が説明されなかったりすると、見る側は苛つくことになる。映像にはこうした怖さがある。それが理解しがたいものであればあるほど、あるいは情報が少なければ少ないほどに、われわれの想像力は刺激されるのである。刺激されておもしろいこともあるが、無駄な想像力の浪費に過ぎないこともある。映像を通した現実感、こうした動的な模索的状况のなかでこそ、もっとも増すことになるのだ。

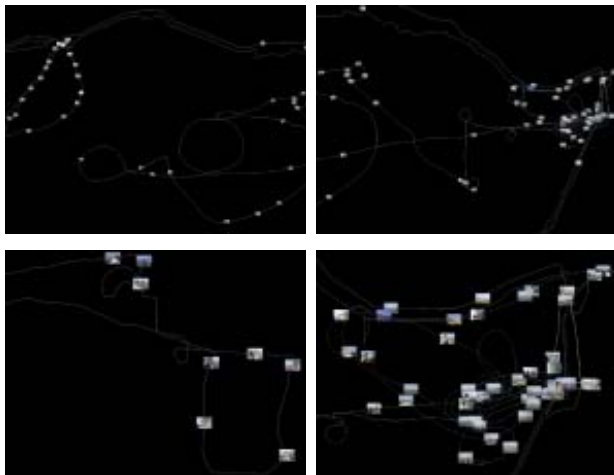
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2002年7月28日  
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what transpires therein as events in three-dimensional space. We can even inject that image realm with our own imaginings. When the Brothers LUMIÈRE first unveiled their film of a steam locomotive steaming head-on into a station, the viewers all fled. Even a two-dimensional black and white image was sufficient to appear three-dimensional. Thus film-goers' "suspension of disbelief" serves to create a wholly subjective realm within the film.

As far as I know, the film director who played most intentionally with breaking the rules by the simplest means was Charlie CHAPLIN. In his films, he alone looks straight at the camera, something the other actors were not allowed to do. Here is the star player in his own film fiction addressing the real audience, thereby cutting the thread of directorial subjectivity. The film is fiction therefore it records this, the perspective of the camera filming constituting total objectivity. Which is why film actors typically do not stare straight into the objective eye; to do so would be to negate the make-believe of the film fiction, thereby pushing it into an altogether different area of meaning.

Conversely, videos taken by an individual may be said to be continuously subjective. Or perhaps better said, video tends to be used solely to prove "I was there." A record of a subjective world of children growing up and places visited. Where as the act of watching such subjective images forces the viewer to try to imagine the photographer's subjective viewpoint. Entering into another's reality forces us to experience that other person's thinking as our own thought. For instance, when in a video of a children's sports meet the camera suddenly pans to the left, we know the person behind the camera's attention quickly shifted to the left, leaving the viewer to ascertain the reason why. Of course, the viewer will be frustrated if the reason is never explained. Such are the dangers of image making. The more difficult to understand, the less information provided, the more it stimulates our imagination. And while such stimulation can be fun, it can also be simply a strain on the brain, a waste of imagination. Either way, the sense of reality to be had via images is greatly increased through active participatory search.



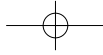
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#### 映像情報の複数化による並列存在感覚

こうした映像の読みとり体験というものは、それを見ている自分と映像内で起こっている出来事を体験している自分とによって、同時にふたつの分裂した自分を体験することになる。この分裂状態は、映画館という特殊な環境内でのみ発生するように保護されてきたために、それほど強く意識されてこなかった。映画に没頭し、主人公になりきることができる空間、それが映画館という場所であり、ひとたび映画館を出れば素直に現実の世界に戻ることができるようにしつけされてきた。映画館が崩壊して、ありとあらゆる場面で映像に触れざるをえない現代、テレビ番組を携帯電話で見るような時代には、状況は一変する。あらゆる映像情報はすでに並列化されて提供される。これは原始的には、網膜内で起こっていた出来事の外在化である。われわれは眼球の内部に住むようになったのだ。網膜スクリーンのレベルでは、あらゆる映像情報は並列化して存在しているのであって、そのなかから必要な情報に意識を集中することで、必要のない情報を抹殺することができるように、われわれの脳内ソフトウェアは作られている。その意味で、人間であるということは、現実と並存する情報を、時間順次処理に変換させる関数をもった生き物であるということができる。旧来型の知性とは、それが作り出した書物とその筆頭であるように、多次元情報の

シリアル  
一次元の能力のことをいうのである。

ところで、こうした並立存在する現実の出来事を、そのまま記録撮影し、再現することはできないだろうか？ たとえば、ひとつのスクリーンの内部に、主観映像を複数化させて存在させることについて考えてみよう。パラレルな画像情報それぞれに、固有のフレームを与えようということである。現実というパラレルな状態に、ひとつの解釈を試みて、別種の読みとり対象としてのパラレルなリアリティーを作り出そうということである。こうした並立した現実感、パラレルな存在のあり方について、量子物理学の世界では、20世紀半ばからさまざまな論文が書かれている。1957年には、ヒュー・エヴェレット III世とジョン・ホイーラーが「多世界解釈」を提唱し、量子並行概念 (Quantum Parallelism) を確率したとされている。また、この宇宙はひとつではなく、並列化した宇宙によって構成されるとし、物理学の世界では、それはすでに「多宇宙 (Multiverse)」と呼ばれている。確かに、時間における同時性の問題ひとつ取ってみても、時間のなかに存在するこの世界を、ニュートンが考えたような完全なひとつの世界として定義することは難しい。このことは、国際電話で地球の裏側の友人とほぼリアルタイムで会話することが可能になったことによって、微妙なタイムラグが意識されるようになり、ますます浮き彫りになった。つまり、私に聞こえている間の聞こえ方と、相手が話している間の取り方は、同じではない



### Parallel presence by means of multiple image data

The act of experientially reading images simultaneously induces two divergent selves in the viewer: the watching self and the self who experiences what goes on within the images. We may not be so keenly aware of this while sitting in a cinema, because the cinema environment was specially designed to engender this split. The cinema being a space where we can "get into" the film and "become" the protagonist, yet just as easily return to reality one step outside the theatre.

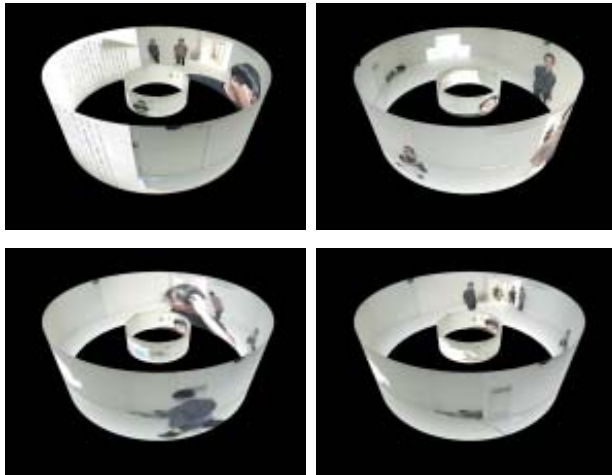
With the demise of the cinema, however, everything has changed. Today we are beset with images at every turn; we can even watch television programmes on our mobile phones. Image data streams at us in parallel feeds. At its most primitive, this constitutes an externalising of what occurs on the retina. We now live inside an eyeball. At the level of the retina "screen", all image data exists in equal multiplicity, our cerebral software being designed to gather only those necessary bits of information into conscious awareness, while simply voiding the unneeded remainder. In this sense, humans are creatures possessed of factors for

ordering what in reality are parallel data into temporal linearity. Thus, existing forms of intelligence, most notably written materials, represent the ability to unidimensionalise (serialise) multidimensional data.

Nonetheless, might it not be possible to cinematographically document real events as-is in simultaneity? Consider, for instance, the prospect of letting multiple subjective images coexist within a single screen, each parallel image data feed given its own set frame. An attempt to render an interpretation of the parallel state of reality by reading in diverse subjects in parallel.

Many papers were written about subjective experience in terms of multiple realities existing in parallel. In mid-20th century quantum physics. In 1957, Hugh EVERETT III and John WHEELER proposed a "multi-world interpretation" by which they established the concept of "quantum parallelism." In their view, the cosmos was not a single universe, but instead composed of multiple universes — or rather, a "multiverse" as it came to be called in physics.

Certainly, considering questions of temporal simultaneity, it proves difficult to define a perfectly unified Newtonian world existing in time. Now that we can call international long distance to friends on the other side



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のだ。さらによく考えると電話を通して、ここでの時間が同時であることを測る方法が実は、無いことにわれわれは気づくのである。こうなったら、むしろはじめから、この世界を、ひとつの世界として定義することをやめたほうがいいが手取り早いであろう。

ひとつの空間における同時性が疑わしいとして、それが実際に並列に存在することはほんとうに実感できるのだろうか。電話はリアルタイムを前提とした通信手段であるだけに、リアルタイムに近づくに従って、それが真にリアルタイムではありえないという限界が見えてくる。しかし、時間的に非同期である電子メールに注目すると、非同期であるがために、むしろ仮のものであったとしてもある種の場の共有感覚が問題になってくる。たとえば、なにごとか思いついたときにそれが深夜であれば直接電話することははばかられる。非常識な時間に突如としてリアルタイムで会話することのできる空間を、こちら側からの都合だけで作ってしまうことは、相手にとって失礼であると普通は考えるであろう。従来であればメモをとって、明日話すことになるであろうが、もしもこれをメールにして送っておくとどうなるだろうか。メールによって送られたメモはここでいったん宙に浮くことになる。実は、この「宙」というのが場として共有されるものなのであり、この場を介して両者はお互いにコミュニケーションしていることになる。この宙に浮いた場と現実人間が住む場とが、実はバラレルに存在してい

ることになるのだ。本来のリアルタイムの通信はこうした外側にある二番目の場を踏みこじってしまうのだ。

私がここ数年展開している《Field-Works》シリーズは、GPSとデジタル・ビデオカメラを組み合わせ、映像に位置情報を付加することで、それらの情報を取り込んだ三次元のサイバースペースにおいて、映像が、その撮影された場所で上映されるようなシステムを作り上げている。ここでは複数の映像が撮影された場所で同時に上映され、個々の映像がもつ個々の世界を並列して再現することができる。島根県で行なった《宍道湖に絵を描く》というプロジェクトでは、集団の記憶をこうしたシステムを通して作り出すために使ってみた。詳しくは実際の作品を体験していただきたい。

旧来の映画の上映システムが、映画の主人公に感情移入することで、自分ではない他者になることを訓練してきたのであるとすれば、こうした現在の並列化した映像情報環境は、われわれに「自分と他者とが共有する空間を経由して、自分の分身にであうこと、またその空間そのものが自分と深い関わりをもつ別の現実感によって成り立っていること、自分の脳が自分のなかに作り出している現実が、実はすでに分裂していることを許容すること」を提案している。それをある種の新しい空間概念を経由させた、客観的な視点から見えるようにすることができるなら、それはある種の宇宙観につながるはずである。



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of the globe in near-realtime, the telltale timelag gives us a clearer sense of this: the audible intervals we hear do not coincide with the pauses our friends make between utterances. Indeed, the more we think about it, we soon discover there really is no way to ascertain via telephone whether the time on this end of the line is simultaneous with the other end. That being the case, better we didn't define the world as one single whole from the very beginning.

With same-space simultaneity thus thrown in doubt, how can we get any real sense of the actualities existing in parallel? The telephone is presumed to be a realtime communications medium, however the closer we push the threshold of realtime, the more apparent its limitations or rather the impossibility of true realtime becomes. And yet, looking at the non-simultaneity of email, it is a shared sense of place however hypothetical that matters. Say, for instance, some idea occurs to us in the middle of the night; up until now, we'd hesitate to call on impulse at such an ungodly realtime hour, but instead might jot down a memo in order to call the next day. Then how about email? Initially the memo sent by email just floats in space, a space which, however, is shared in common

and accentuates a sense of parallel existence when communicated through. Such a space is necessary in order to share common mindframe with others, as in fact all existing realtime communications have had to crouch through some intermediary place.

My on-going *Field-Works* series utilises GPS (global positioning systems) in combination with digital video cameras to append positional information to video images and display them in three-dimensional cyberspace at the places pictured. This allows multiple images to be shown simultaneously in situ, each image reproducing each world-as-seen in configuration. We used this system to create a kind of collective memory in the project *Lake Shinji as a Drawing Pad* (2002). For further clarification, please experience the work for yourself.

If film up to now trained us to "become" others, this scheme of configuring present-tense image data urges us to "accept that I am here just as others are here, accept that outside the reality my mind creates there are also realities that other's minds create." If that can be seen from a summative objective viewpoint via a new kind of spatial vision, it may well lead to a new cosmology.