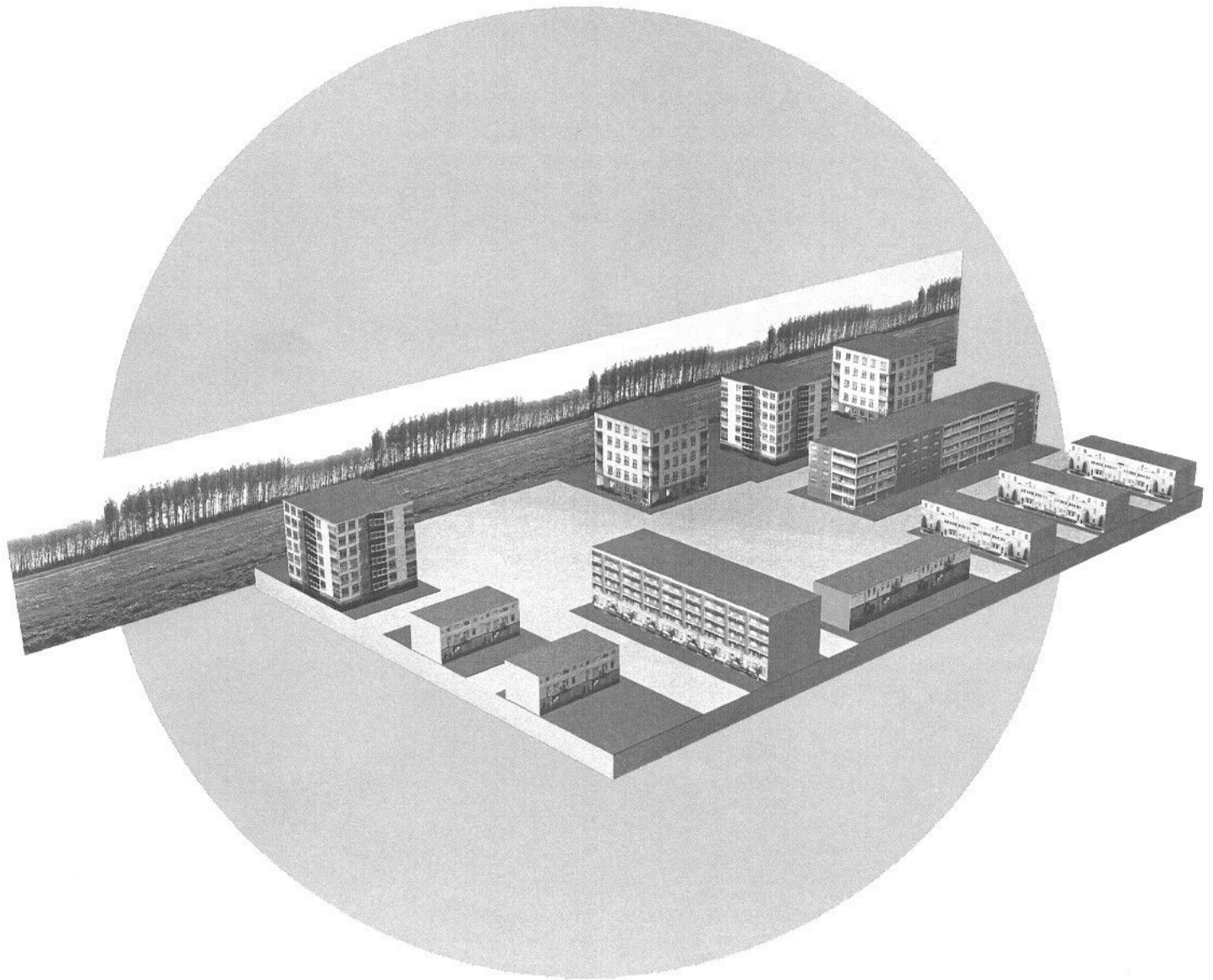


# IMAGING IMAGINATION



**Exploring the Impact of Dynamic Visualisation  
Techniques in the Design of the Public Realm**

**Workshop as part of the third Conference of the  
European Architectural Endoscopy Association**

Workshop      Delft EAEA Conference 1997

# I M A G I N G I M A G I N A T I O N

## Exploring the Impact of Dynamic Visualisation Techniques in the Design of the Public Realm

Jack Breen and  
Martijn Stellingwerff

### The Development of the Imaging Imagination Workshop

The conference workshop in Delft was a follow-up to workshop sessions during the two previous EAEA conferences.

In Finland, in 1993, the conference participants took part in a design exercise, making active use of the Tampere University endoscope facilities.

In Austria, in 1995, conference participants were invited to contribute to the workshop 'the (in)visible city'. In this case a model had been prepared, scale 1 : 500, of a part of an ambitious urban masterplan for the old airfield of Aspern, near Vienna in Austria (designed by the Viennese architect Rüdiger Lainer). The scale model subsequently travelled to the institutes that had indicated they were willing to contribute to the workshop. On the basis of this model each institute prepared a design presentation which was shown at the conference, chaired by Bob Martens at the University of Vienna (for more information: see the Proceedings of the second EAEA conference).

The (in)visible city workshop formed the inspiration for the conference workshop prepared by the Delft Media group for the third EAEA conference. Our contribution to the Vienna workshop had proved useful as a case study object in the Media group's design visualisation research and subsequently formed the basis of an educational experiment: 'learning from the (in)visible city' (for more information: see the paper 'Modelling for eye level composition' in this publication).

The theme - *Imaging Imagination* - was inspired by the term *imaging*, introduced by John Zeisel as a characteristic ingredient of design in his influential book 'Inquiry by Design'. Zeisel argued that imaging is an essential design activity, as the designer has to steadily create design images throughout the different phases of design. These images communicate the *intentions* of the design (as far as they are known at that point) to the critical designer and his/her team, but also to others involved in the design process, such as the client(s) and different other actors influencing design *decisionmaking*.

The organisers of the 1997 workshop were curious to see how Endoscopic imaging techniques might be able to stimulate the *imagination* in the design process. Again: this may concern the stimulation of the *designer* as well as the involvement of the *other disciplines* involved. We hoped a workshop situation might provoke insights into this essential aspect of creative design.

Another point of interest was how different *optical* endoscopic approaches might compare to emerging *computer visualisation* techniques. The workshop was envisaged as a 'marketplace' for methods and ideas, where colleagues would meet and openly discuss the impact of existing techniques and the potentials of new ones. The object of the workshop was to include - and confront - both *optical* and *digital* Endoscopy techniques.

The method adopted for the workshop at Delft was comparable to the set-up in Vienna. Again a Design task would be set beforehand and would be forwarded to the participants, who would then prepare a contribution *prior* to the conference. This time the model would, however, not travel from one institute to the other, but a relatively simple model set would be sent to each participant separately. The Media group decided not to choose for a more or less 'interior' scale for the design visualisation task, but opted for the scale of the *urban ensemble*, a design context for which we believe Endoscopy is most often - and most effectively used.

The idea was to keep the design task relatively simple, with a clearly defined set of constraints, in the hope that this would facilitate the comparison and evaluation of the contributions, on the level of the quality of *design proposals* as well as concerning the specific *technical solutions*.

A design task was chosen which is a variation on a Form Studies exercise at the Delft Faculty of Architecture in the educational Block number 3: 'The City'. The site is an imaginary situation on the edge of a Dutch city ( see chapter 'The workshop task').

The choice was made for a scale model 1 : 200 in addition to a computer model. To suggest a sufficient sense of 'place' and a basic level of 'realness' in the model of the surroundings, a texture mapping technique was adopted which had been developed by the Delft Media group for the (in) visible city models. This entails the 'sampling' of images and subsequently applying these as a kind of urban 'wallpaper' onto the elementary geometry of the building blocks. This technique only leads to something approaching a correct spatial image, as there is no reliable perception of 'depth' in the simulated eye level views. However, this approach works relatively quickly and the Media researchers in Delft were interested to find out how experts from other institutes would respond to this technique.

The facade 'textures' were taken from real buildings in the recent, southernmost, housing development of Delft called the "Tanthof". On a bicycle trip through the area, images were collected using a digital photo camera. From these images a selection was made which were 'straightened' using 2D photostyler software in the computer. The flattened elevations were then applied as texture mappings in the computer model and used as 1 : 200 elevations for the scale models.

## The workshop task

Each of the institutes that had shown interest in the workshop was sent a set of material, consisting of a model set for optical or digital visualisation. A number of institutes received both. In addition, each received a written text with plans, amounting to the 'rules' for the workshop exercise, plus a questionnaire meant to gather data about the technical aspects of the presentations and specific experiences or suggestions.

The following workshop information was sent to all the potential participants:

“

Dear Workshop participants, we are very pleased that your institute is willing to contribute to the Imaging Imagination workshop as part of the third EAEA conference.

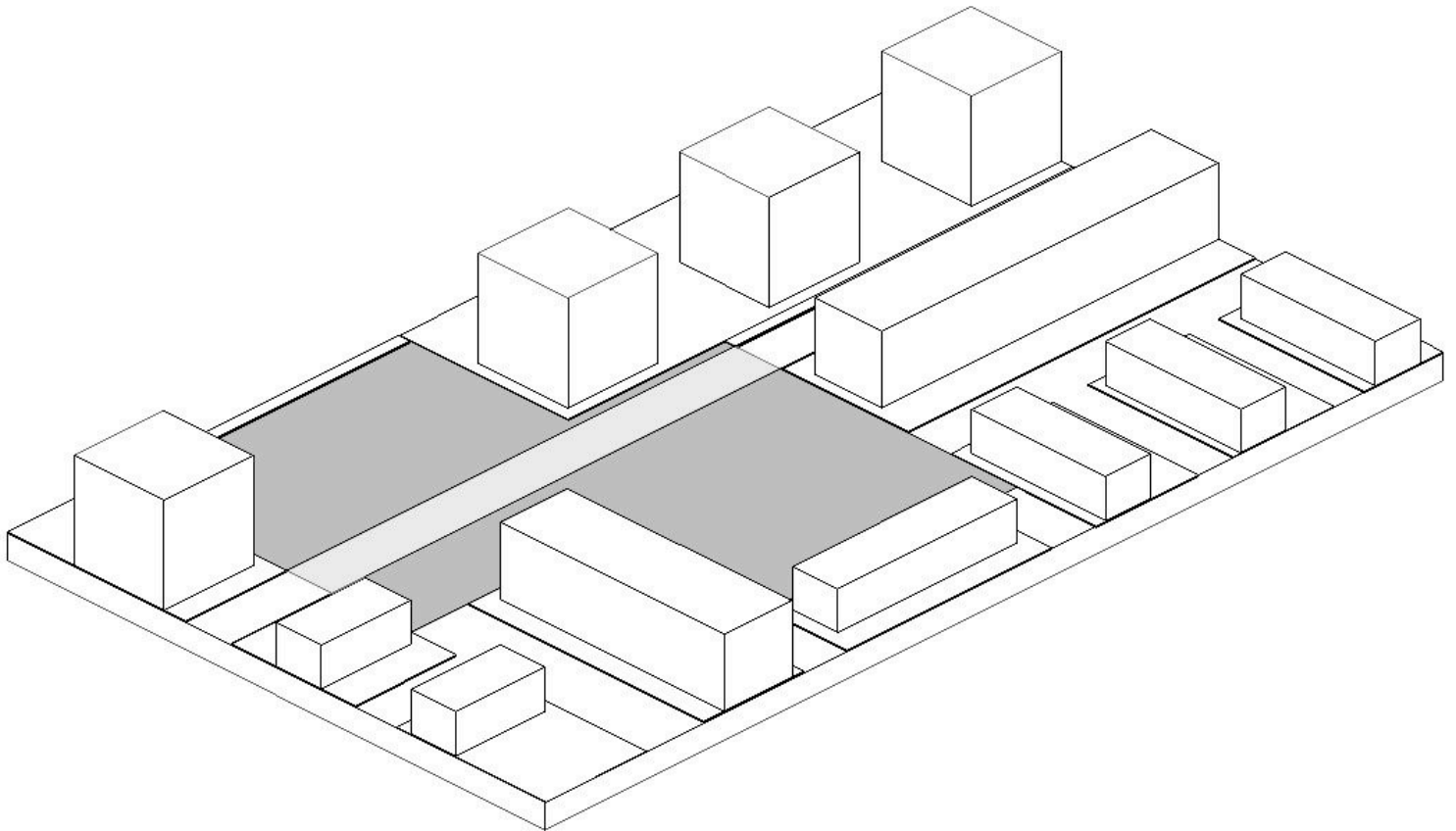
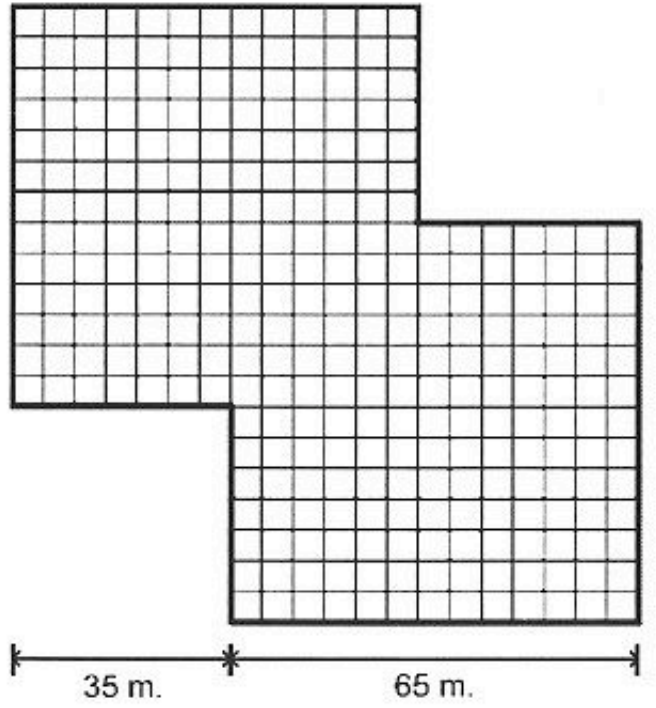
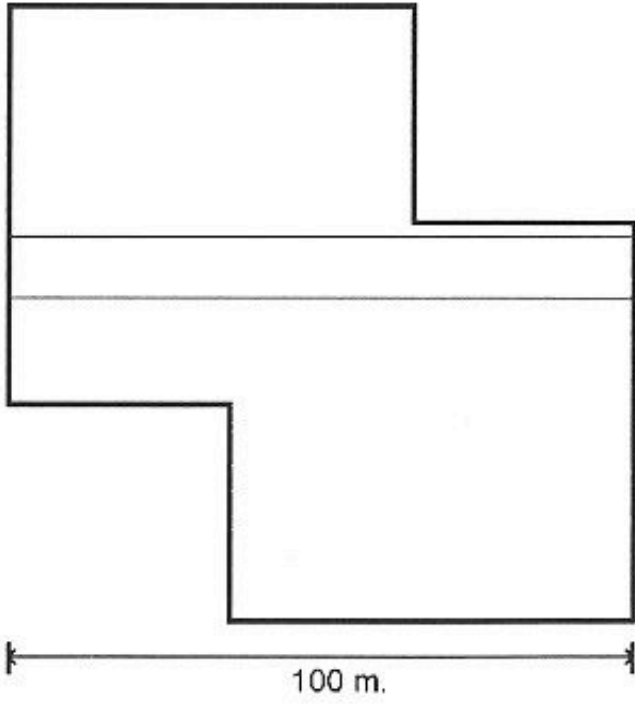
At this moment a total of 14 institutes have indicated that they will be preparing material for the workshop. Of these 5 will be preparing Optical Endoscopy proposals and 5 will be using Computer Visualisation techniques, while 4 institutes plan to use both techniques.

The Workshop 'Imaging Imagination' forms a part of the third EAEA Conference to be held in Delft on August 27, 28 and 29 1997. Participants are invited to prepare contributions to the Workshop by creating design images which will be presented and compared during the conference and evaluated in the Proceedings, which will be published after the conference.

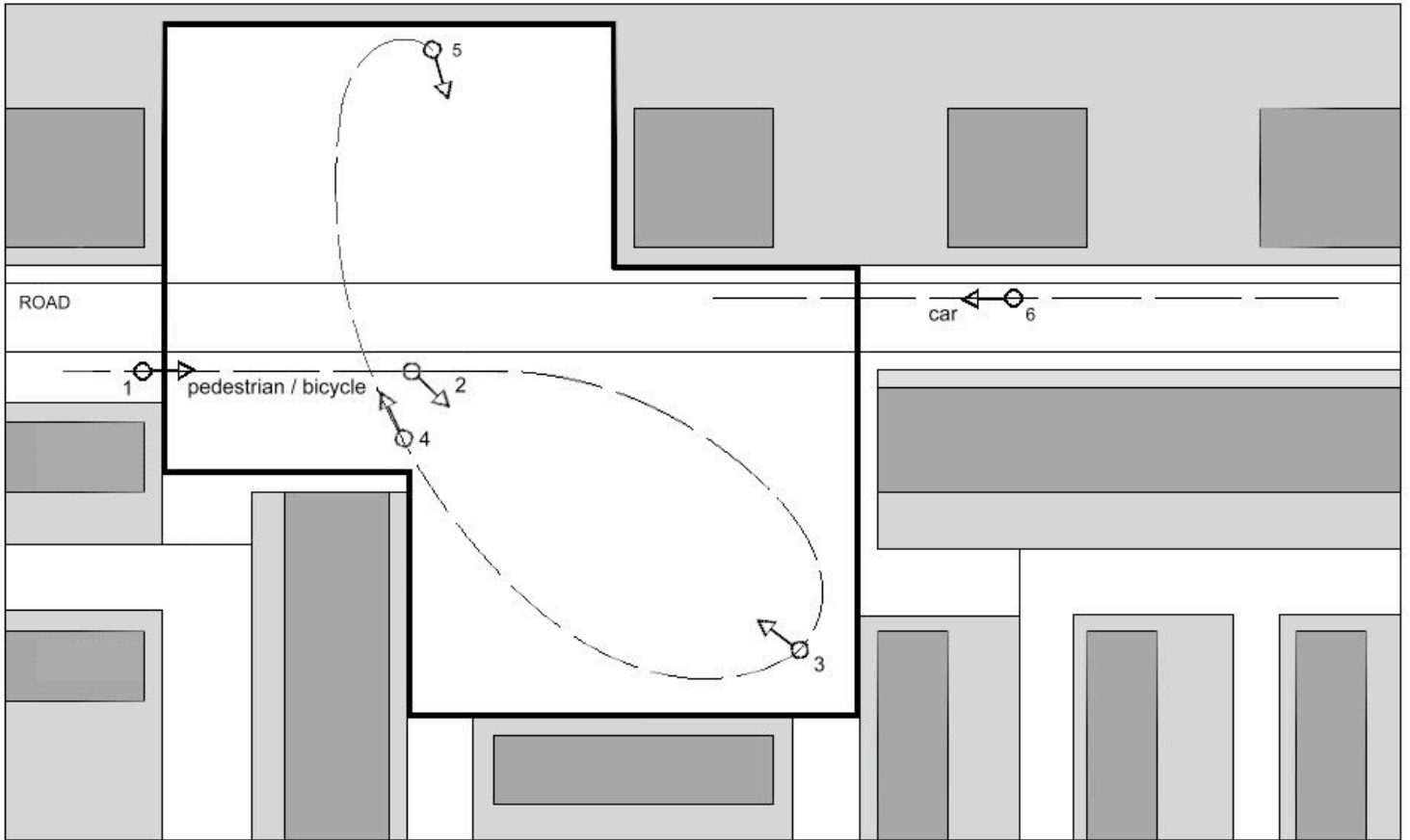
The contributions are to be prepared by the participants at their institutes prior to the conference. The workshop results will be presented and evaluated at the conference on the 28<sup>th</sup> of August. Material should be brought to the conference for exhibition and presentation. Participants who are not able to present their contributions at the conference should forward material to the conference organisation beforehand.

### Design Media

Participants can employ different design media, the first being a combination of scale model and Optical Endoscope. For this purpose a standard model set will be forwarded to those participants who indicate that



POLDER



ROAD

1

pedestrian / bicycle

5

2

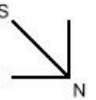
4

3

6

car

CITY



they will be using optical Endoscopes. The scale of the model components is 1 : 200. The design can be worked out on a standard cardboard base measuring 50 x 50 cm. This should be brought to the conference, where the different design models can be compared and viewed in the Endoscope of the TU Delft.

In addition, it is possible to prepare design views by using Computer aided methods for design visualisation. An AutoCAD/3D-studio computer model of the design surroundings will be forwarded on floppy disc to those participants wishing to use CAAD.

Institutes taking part may choose to present plans using either one of these visualisation techniques, or both. The design task is considered as a vehicle for a comparative study of design visualisation approaches using optical or digital visualisation techniques. During the conference the qualities of both techniques will be compared and discussed.

The merits of different design solutions and how these are reflected in the visualisations will also be the subject of discussion and evaluation.

The main objective of this workshop focusing on the perception of the public realm, is provide a friendly confrontation of different working methods and technical approaches concerning dynamic design visualisation.

### **Design and Visualisation Task**

The task for the Workshop can be compared to a limited design competition set by an imaginary Dutch town council for a site at the edge of an equally imaginary Dutch city. The overall measurements of the site are 100 x 100 metres with two incisions on opposite corners (another way of considering the area is as two overlapping squares, each measuring 65 x 65 metres).

[hier afbeelding plan.tif]

This level, open space is bounded on three sides by housing blocks of varying height (blocks of 3, 4 and 6 stories). The fourth side has been left open and offers a view over an extensive, typically Dutch polder landscape. A minor road runs across the site, dividing it into two unequal parts.

At the beginning of this fictitious design competition, the surrounding buildings have been determined, but the site is an unattractive open plot of land with no form of articulation whatsoever. Participants are asked to work out a 'scenario' for an attractive public environment, with a clear relationship to the surrounding buildings, but with specific qualities (in the words of the influential Dutch architect Aldo van Eyck: "a sense of place and occasion").

Although a certain openness is to be maintained, the designers are asked to introduce one or more 'primary' elements in the form of compact buildings: pavilions that might house communal facilities. Such built forms should be placed and shaped strategically, so that the hitherto empty site will acquire a new level of spatial articulation and differentiation.

In addition 'secondary' elements may be introduced, such as for instance differences in ground levels, surface treatment and paving, (semi) transparent screens or rows of streetlights and of course trees...

The aim is to create a spatial composition which should offer interesting, varied spatial experiences against the backdrop of the existing buildings, particularly when viewed at a pedestrian level.

It should be clear that the design and visualisation task is primarily concerned with the open public space and not with the surrounding buildings. However, if it is considered necessary to change aspects of the buildings which could influence the spatial experience, it possible to introduce alterations into the design context. This might involve changing the 'design' of the end elevations of the blocks, or possibly the extension of one or more blocks by adding extra building volume. For Optical Endoscopy participants it is advised that this should be done in such a way that the underground will remain removable and can therefore be inserted into the Endoscope model in Delft for viewing during the conference.

The road should not be considered as a great problem for the development of the plan. It should be imagined as a not particularly busy street with occasional car and bicycle traffic. It is possible to pay attention to the way in which the crossing of pedestrians should be worked out and to ways in which car drivers might be made aware that they are approaching a public square and will be cautioned. The basic profile of the road may be articulated further. Apart from this road it is not necessary to create special facilities for cars. The site is intended to be car-free, only to be used by pedestrians - and perhaps bicycles. The surrounding houses can be reached via other streets, so no roads need to cross the public space which is to be designed.

The new building pavilions which are to be introduced can contain any kind of (public) facilities which the designer(s) consider necessary. In principle it is not the intention to create more buildings for housing.

The new functions need not be specified. What is expected primarily is an indication of the placing, shape, scale, structure and possibly a suggestion of the kind of architectural expression which might be expected in the new buildings. The architectural plans and interiors do not need to be worked out in any way (this would be the subject of a theoretical next design round, this phase is primarily intended to lead to an indicative urban scenario for the site).

The site is flat, but differences in ground levels may be introduced. In principle, there are no limitations to changes above the basic ground level. Changes in ground level downwards are limited to a maximum of 60 cm, due to the underground waterlevel which lies at this depth under the existing surface (this corresponds

with the thickness of 3 mm of the Optical Endoscopy cardboard groundplate). This underground waterlevel corresponds with the water in a small canal which forms the boundary of the site on the side of the typical open polder landscape. In the design this drainage ditch should in principle not be bridged, however it is possible to introduce some form of terrace against or even over this canal boundary. It is also possible to introduce water into the rest of the plan area.

Besides primary - architectural - elements and variations in ground levels any number of secondary spatial elements, such as different types of paving or grass, boundaries and screens, streetlights, masts or signs, 'green' elements such as trees and other items which can convey a sense of scale may be introduced as compositional 'layers' of the design. One of the aims of this workshop is get insight into the different materials and techniques used by the participants in modelling and visualising their proposals. Besides more sophisticated modelling solutions, approaches which make use of more informal, experimental modelling techniques are welcome.

### **Presentation**

The emphasis in the design presentations should lie on the visual experience at ground level. Participants are encouraged to investigate and present the qualities of their proposals using dynamic means of design visualisation. This can mean either a 'serial vision' approach using a series of static images or a flowing motion sequence approach using either Optical Endoscopy or Computer Animation techniques.

Each participant will be asked to prepare a compact set of images: six 'stills', which are to be taken from previously specified spots, looking in a given direction (see the scheme). These sets of design images will form the basis of the exhibition and presentations during the conference and will be used for the comparison and evaluation of the different approaches and technical applications. The quality of the designs and the ways in which these are visualised will also be considered and discussed.

During the conference a limited amount of time (approximately 5 minutes per plan) will be available for additional video/slide/Cad presentations.

The presentations should be primarily aimed at creating insights into the qualities of the design proposals for the benefit of the 'client' (firstly, the fictitious town council committee, but also for other possible 'actors' in the design process, such as citizens concerned about the impact of the proposals on their neighbourhood). For this reason participants are requested to prepare images simulating visual impressions at street level.

The essential piece of workshop 'output' per contribution will be the six 'stills' as indicated in the scheme. You are required to prepare these as photographic prints 10 X 15 cm. These six photographs should be handed over to the conference organisation at the beginning of the conference. This set of photographs will remain with the Delft Media group and will be used for the workshop exhibition and for the proceedings. Please note on the back of each photograph the name of your institute and the number of the 'take' (number 1 to 6 corresponding to the numbers in the scheme).

The camera situations numbered 1 to 6 are of course indicative. If for some reason it is impossible to create a reasonable view from the predetermined spot, because for instance there is a building or some other object situated there, please choose a similar location in the vicinity which will offer a useful view. Please indicate different camera standpoints on the scheme which is included. Besides the eyelevel 'stills', it is advisable to include a plan or an overview of your design.

Apart from the photographic images, participants are stimulated to create dynamic images of their proposals as perceived in motion, documented on Video or computer files.

We invite Optical Endoscopy participants to bring their 50 x 50 cardboard inset to the conference so that these scale model proposals can also be exhibited and viewed in the Endoscope of the Delft Architecture Faculty during the conference.

### **Procedure**

The results should be brought to the conference and the basic set of six design images handed over at the beginning of the conference for exhibition. In addition the participants will be asked to complete a questionnaire, which will be used to evaluate the different design strategies and working methods and their impact.

Institutes participating may prepare one or more proposals. Besides members of staff, students may be involved in preparing design images. If your institute is presenting more than one plan, please indicate this clearly by using a letter code or motto per plan variant which should appear on all documents which are to be handed over to the Delft Media group. Please indicate on the questionnaire (which will be sent to you shortly) the names of the persons who contributed to each proposal, specifying those involved in the design and those responsible for modelling and visualisation, plus the status of each (academic staff, student, professional).

Material to be presented to the conference organisation on the first day of the Conference:

- \* The six Endoscopic images (15 x 10 cm) from the previously described viewpoints, either as photographs or Computer images.
- \* The design models themselves, either as 1 : 200 scale models on the cardboard base or as computer files.
- \* Filled in questionnaire (the form will be sent with the next conference mailing, second half of June).

Besides the six still images of the pre-defined viewpoints, you can present dynamic visualisations on videotape. Digital documents (images, VRML models, AVI or QuickTime files) can be handed over on floppy disks or ZIP drives, formatted for MS-DOS / Windows computers.

We look forward to your contributions and to seeing you at the conference!

The Delft Media  
//  
group.

## The workshop contributions

Eventually, the input to the conference workshop amounted to fifteen different entries, of which eight were prepared using optical visualisation techniques and seven using computers. At the beginning of the conference, the participants handed over their material: the 'stills' which had been requested for the workshop exhibition, videotapes and computer files. Using the still images taken from the predetermined positions in the model, a data 'wall' of images was made, which could be viewed during the afternoon of the workshop session during the conference.

During the project presentations, additional images on slides, video or computer format could be presented and some of the design models brought to the conference were viewed in motion using the recently renovated Delft Faculty of Architecture endoscope.

On the following pages, each of these contributions is presented in the form of a project 'file'. In principle the set-up for each project presented in this overview is the same:

- \* Basic information, including the name of the Institute and the names of researchers and/or designers participating in the project and the specifications of the apparatus used for the design visualisations. In addition, specific remarks from the workshop questionnaire are summed up.
- \* A vertical band of small images on the left hand side, corresponding to the positions in the given path (see plan of the site) from which these images have been taken. In principle the top photograph is an overview (O) followed by six images taken from viewpoints numbered 1,2,3,4,5 and 6 (see the example for the organisation of the images in the side line of this page). In some cases the photographs do not correspond exactly to this set-up, in which case a compromise has been made. Some participants brought more stills than specified (for instance showing various extra viewpoints, design alternatives or a simulated night situation). In some cases these are to be found in a similar band on the right hand side.
- \* Selected images are shown in a larger format. This may concern one or more pictures from the basic set of seven, or may consist of some extra information, such as a drawing, a detail or one or more prints from a video presentation.
- \* Each of the presentations is accompanied by a short description of the project (drawn up by the Delft Media group).

In addition, a videotape has been prepared of the conference presentations and also the workshop projects can be viewed using a special web-site: <http://www.bk.tydelft.nl/GTM/Media/eaea/imim/index.html> .



IMAGING IMAGINATION - workshop results - 28th of August 1997 at the Delft University of Technology

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Bookmarks Location: <http://www.bk.tudelft.nl/media/eaea/mim/index.html>

# IMAGING IMAGINATION



**Exploring the Impact of Dynamic Visualisation**

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◀◀◀ WORKSHOP INFO

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[Conclusions](#)

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IMAGING IMAGINATION - workshop results - 28th of August 1997 at the Delft University of Technology

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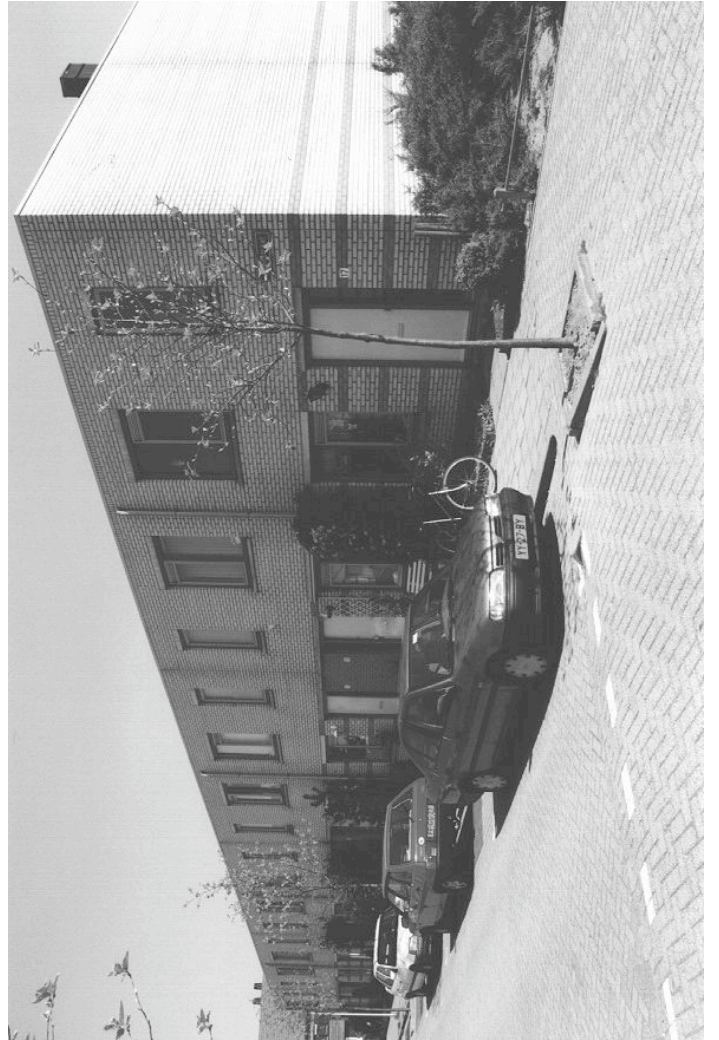
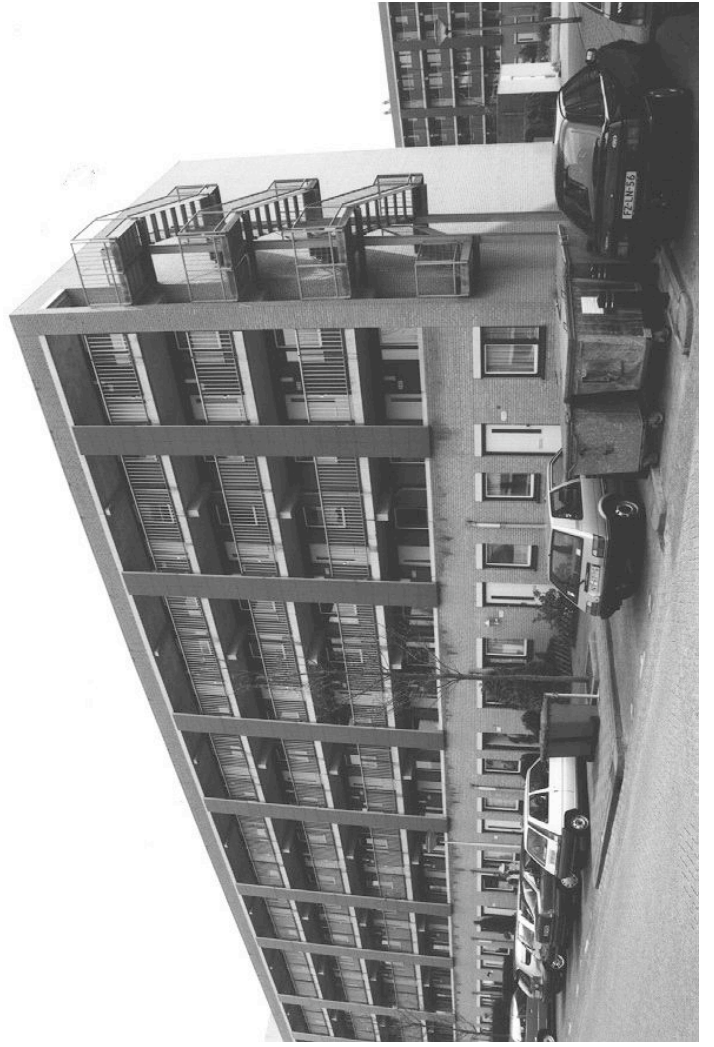
[Conclusions](#)

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**Design & Visualisation :** Ronald Franke (franke-r@Rcs1.urz.tu-dresden.de)

**Institute :** Modellsimulationslabor, Technische Universität Dresden, Institut für Gebäudelehre und Entwerfen, Mommsenstrasse 13, D-01602 Dresden.  
Phone: +49-351-463-5083, 463-2210, -463-4796 Fax: +49-463-2395

**Used techniques :** A miniature video camera (17 mm diameter x 48mm); S-VHS-recorder; computer controlled moving system 2x3x1 m (x,y,z) with speed control; the route through the model is furthermore programmable by a computer and navigation is possible with a joystick.

**Questionnaire Remarks :** No information available.

### Project

A good example of the way in which Endoscopy can be used to evaluate the opportunities of different, intermediate design proposals during the development process and how in this way the making of choices concerning architectural form can be facilitated.

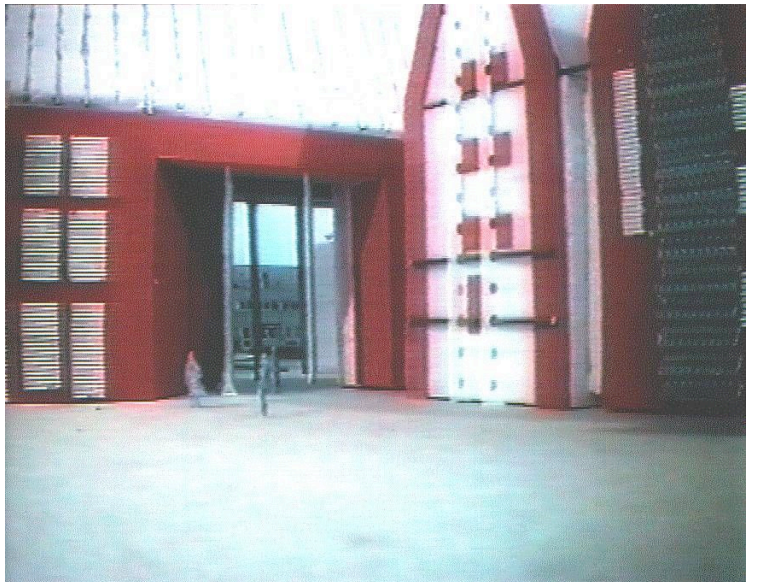
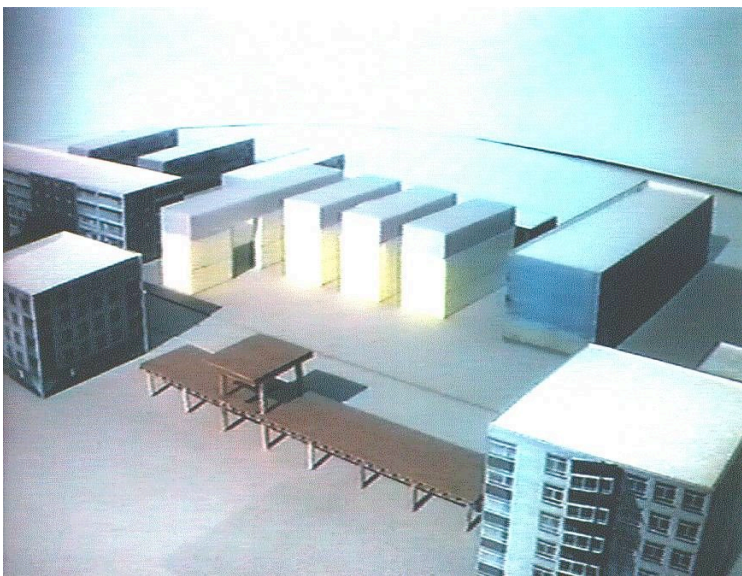
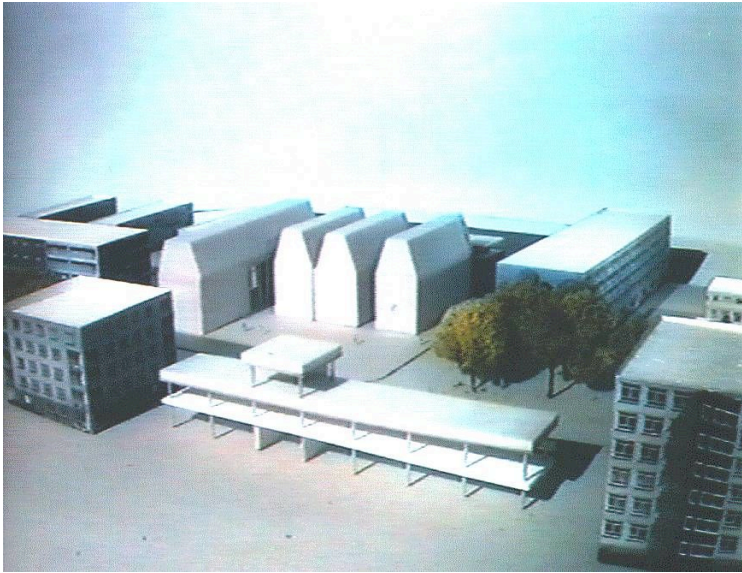
Other than the optical design experiments of the Vienna group, who refined one fundamental design concept, the group from Dresden initially generated a number of quite distinct options for the site.

These design concepts were compared and documented in a systematic way, allowing for comparison and design decisionmaking.

Subsequently, a basic strategy was determined and this was developed and articulated further in a number of steps. The basic design evolved from a more or less 'immaterial' model composition to a specific, integral design solution, incorporating clearly articulated statements concerning proportion, shape and colour of the different elements.

The different design variants and the evolution of the chosen concept have been documented on a project video tape, presented during the conference workshop sessions, with the video soundtrack generating some response from the audience.

This project is particularly interesting as it allows us to trace the different design steps, from the early, conceptual choices to the shaping and materialisation of the facades. It also demonstrates the impact of the characteristic elements of the final design, such as the see-through offered by a 'gate' building which links the different urban spaces within the overall plan.



- Design :** Peter Kardoš, Radoslav Vlkovic, Júlia Hanuliaková, Alexandra Lakotová
- Visualisation :** Peter Kardoš, Radoslav Vlkovic, Júlia Hanuliaková
- Institute :** Faculty of Architecture, Slovak Technical University of Bratislava, Nam.Slobody 19SK-812 45 Bratislava 1, Slovakia
- Used techniques :** Endoscope, Focal length 32mm, CCD: 512x582 pixels PAL 625, VHS , photography: OM SC 35, mechanical / electrical hand guided movements, painted background, diffuse light with 3200K colour temperature, digital image editing (post production techniques) with Aldus PhotoStyler.
- Questionnaire Remarks :** According to the design and visualisation group of Peter Kardoš, the imaginary model represents a typical 'Dutch town image' as far as the technology of the housing blocks and the extensiveness of the Dutch housing environment are concerned. The realistic information of the photo-textures on the facades enhances the relevance of architectural form, identity and the urban proportions. The shadows of buildings on their facades are imaginative. The group mentions the high importance of the 'eye-level view' during design tasks concerned with details in the model. The more general design decisions, such as placement and height of masses can be made in 'birds eye view'. Proportions of spaces can be designed best when both views are taken into account. The designers had an initial image in mind about what the design should look like, but this image differed a lot with the final result. The reason they mention for this difference is: 'endoscopy, with its verification, enables deeper elaboration of the design idea in a positive sense'. They used the endoscope as a true design instrument rather than merely as a presentation tool. During the design process, they used hand sketches and model sketches within the given context scale model. Different modelling concepts were made in order to verify spatial dimensions and compositional relations. Finally, Kardoš stresses the use of binocular images and the development of stereo-endoscopy (see his conference contribution).

## Design

A vigorous and dedicated approach to the implementation of optical Endoscopy in creative design is evident in this visualisation project contributed by the Bratislava Technical University.

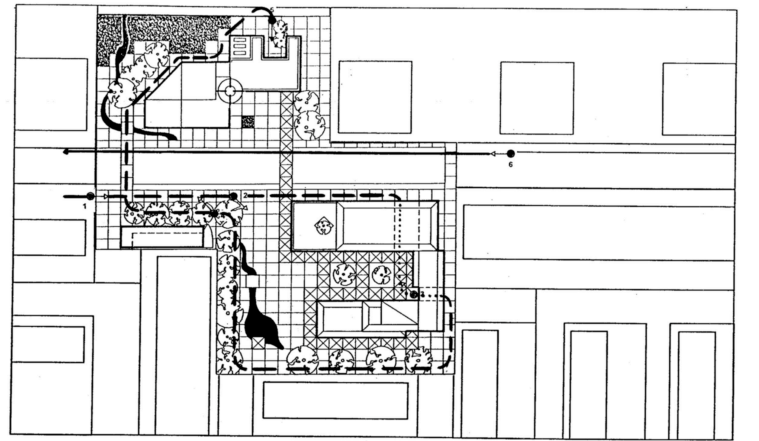
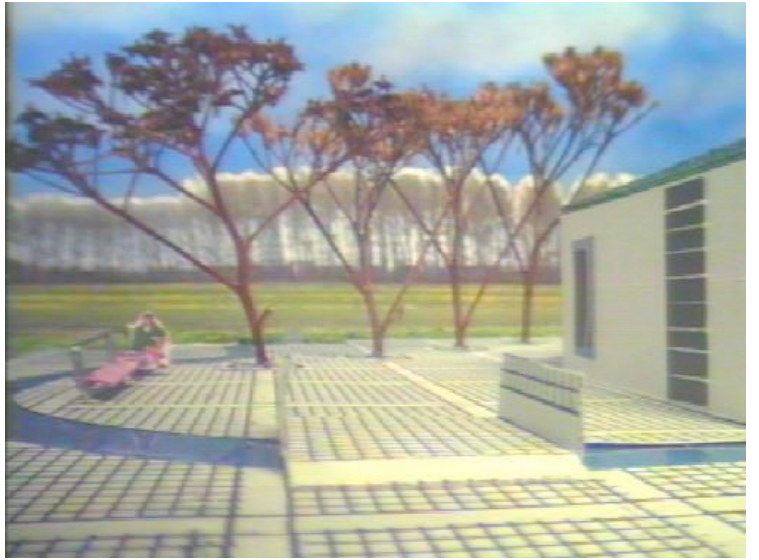
This proficient presentation illustrates a number of the recurring themes of dynamic design visualisation in an interesting way...

Firstly there is the matter of the model, which has to be made in such a way that it will come across well when viewed with an endoscope. This implies a 'film-set' approach to modelmaking, putting emphasis on the parts shown in endoscope motion and should suggest the correct scale. The finely tuned Bratislava design model brings across a very imaginable, lively outgoing and shopping environment by using effective facade modelling and covered walkways. Another, often indispensable, aspect is the introduction of secondary information which 'furnishes' the space plus

model figures which accentuate the human scale. In this model the use of simple cut-out figures proved very effective. The more 'real' the information in the model, the higher our demands on lighting and use of 'background'. A 'sky' used as a backdrop can easily become too obtrusive, as some of the computer presentations demonstrate. This visualisation made use of an aerial background with painted clouds and subtle lighting. Camera standpoint and travelling speed are another aspect to take into consideration. This presentation made use of different types of motion, such as walking and travelling by car (underscored by showing the view through a 'windscreen'). Lastly, this project emphasised the importance of paying attention to 'output'. The same images photographed from a TV screen, using SC 35 photos and using digital prints, conveyed quite different impressions of the same viewpoints. All in all a successful and truly 'didactic' contribution!







- Design & Visualisation :** Oliver Pestal and Bob Martens (bmartens@email.tuwien.ac.at)
- Institute :** Department for Spatial Simulation (Full-Scale Lab), Technische Universitaet Wien, Karlsplatz 13/2561, A-1040 Wien, Austria.  
Tel: +43-1-58801-3382 or 3383. Fax: +43-1-5041147. <http://info.tuwien.ac.at/raumsim/>
- Used techniques :** Endoscope 3CCD, focal length: 80°, hand movements, painted background, more direct spotlights and diffuse light, specific color temp. 3400° K. Archicad 5.0, 3D-Studio, phong shaded, with textures and materials, background as a gradient, more spotlights. Vrmf export.
- Questionnaire Remarks :** Pestal and Martens find the facade images on the building blocks an easy way to get all textural information on the walls. It creates useful pictures of the existing 'characters'. No extra details are required in the geometric form of the surrounding buildings.  
To evaluate the effects of different materials and in order to explore the characteristics of the design draft, they made small tests of different modelling concepts. To make the design look fit into its surroundings, the model was refined, in steps, introducing a higher level of detail in the facades and the surface.  
Through dynamic visualisation the design is explained better, as one can only experience a model fully by including the factor time.

## Project

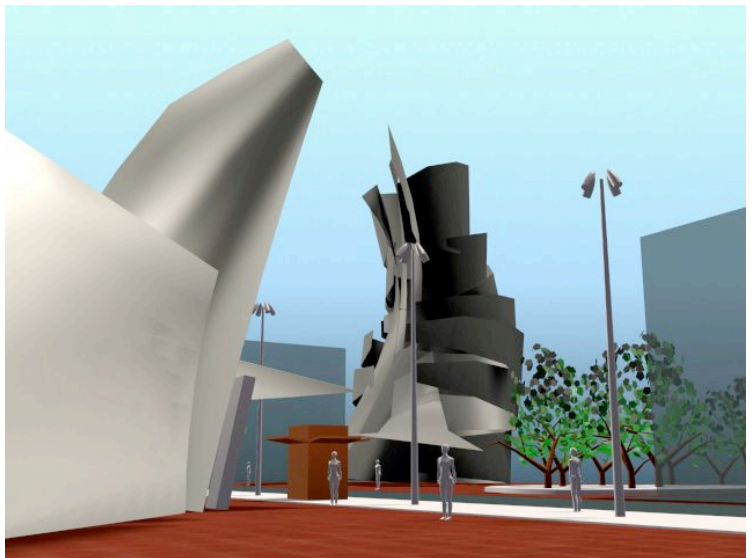
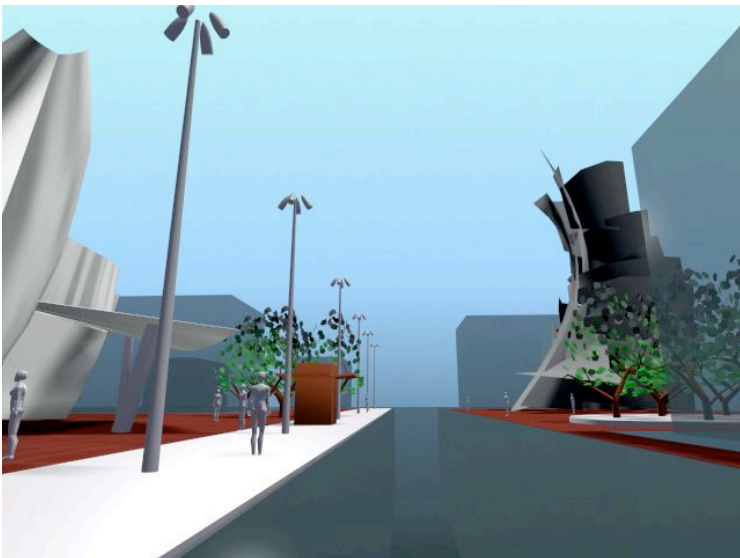
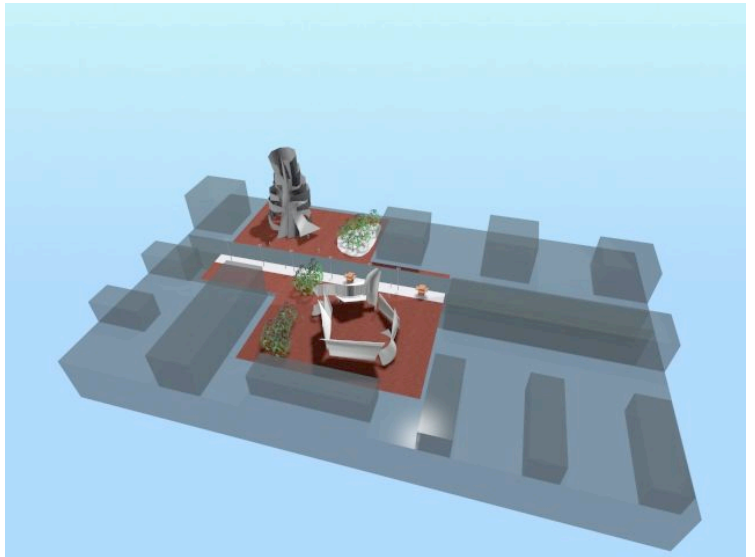
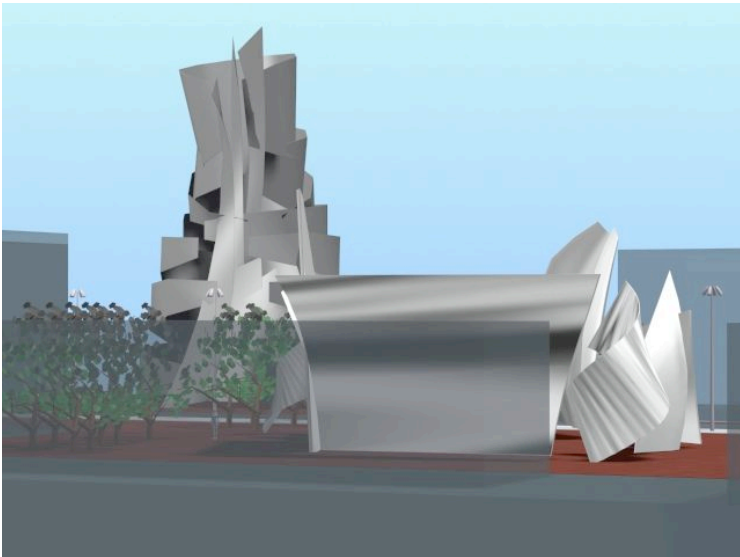
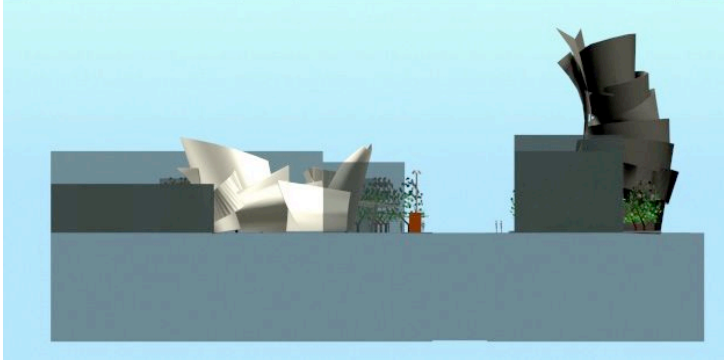
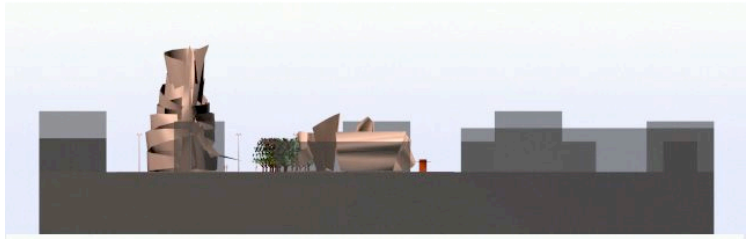
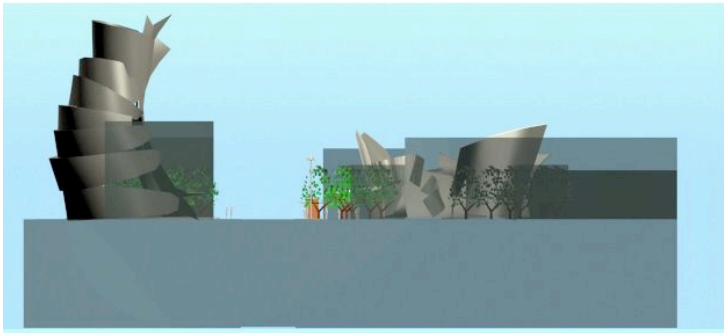
The - optical endoscope supported - design proposal by the Vienna Full Scale Lab group is notable for the way in which the instrument was used to develop and refine the design from the initial stages onwards.

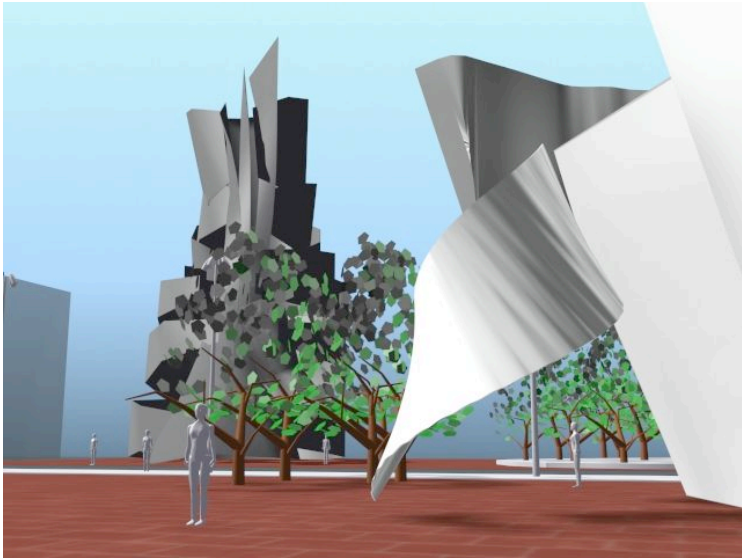
An interesting point is that in the earliest phases of the process, the designers found that the model of the surroundings which had been provided, led to a visual information 'overload'. In this stage they would have preferred a simple volumetric model showing only the floor-levels, to indicate a basic suggestion of the buildings' scale (for a documentation of the development process: see the workshop paper 'Possibilities of Endoscope Implementation Regarding Development of Complex Spatial Structures', included in the Imaging Imagination web-site [www.bk.tudelft.nl/GTM/Media/eaea/imim/](http://www.bk.tudelft.nl/GTM/Media/eaea/imim/)).

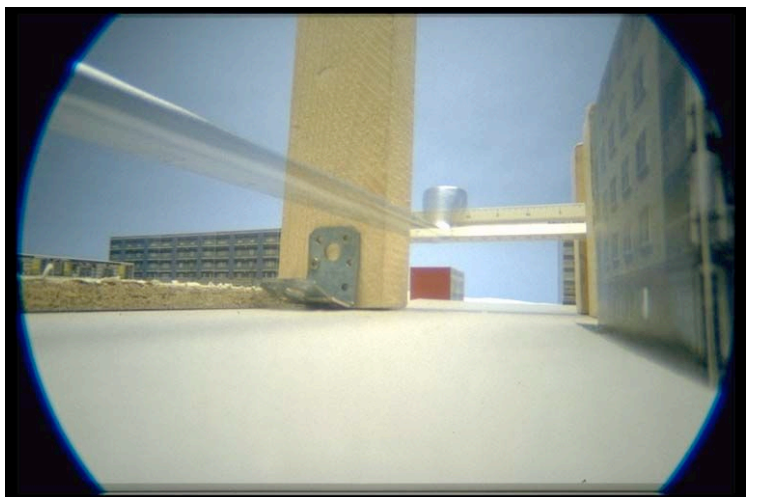
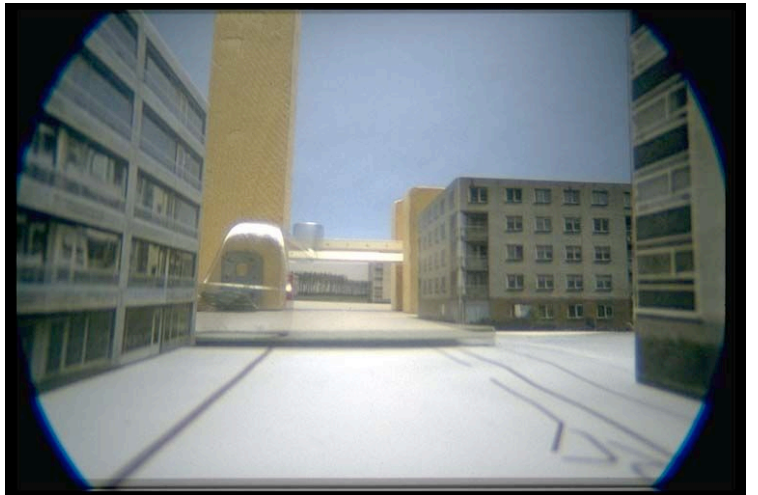
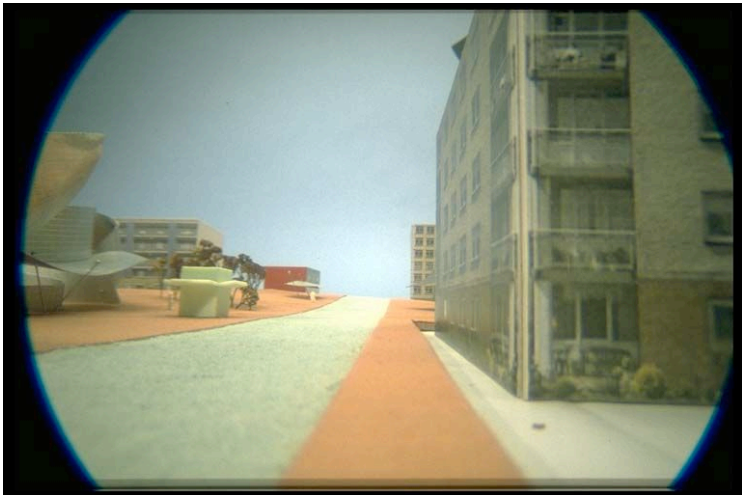
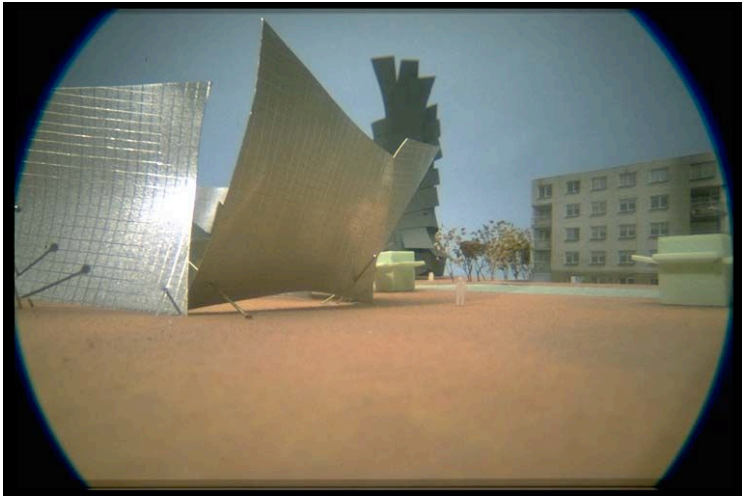
The main characteristics of the plan are the strategic positioning of two distinguishing buildings (a complex tower pavilion and an equally articulated, lower volume).

Using the endoscope these determining elements and their position were worked out step by step, from very rough, basic shapes to more precise, sculptural elements. An example of an 'in situ', iterative design process taking place directly in a scale model.

Besides being photographed using an endoscope pipe in Vienna, the final model was also viewed using the Delft Faculty of Architecture endoscope during the conference workshop sessions. In addition, the final design was documented convincingly using computer aided techniques, highlighting the contemporary (somewhat 'Gehry-ish') impression of this design proposal.







<b>Design :</b>	Masato Shimize, Eiji Koyanagi, Koshi Sakuragi, Takuya Saito,
<b>Visualisation :</b>	Naoji Matsumoto (matumoto@archi.ace.nitech.ac.jp), Shigeyuki Seta (s-seta@alpha-web.or.jp), Toshiki Kono, Eiji Koyanagi, Koshi Sakuragi, Fumiaki Aono, Yosuke Sada, Takuya Saito, Naoki Fujiwara
<b>Institute :</b>	Nagoya Institute of Technology, Matsumoto Laboratory ( <a href="http://archi.ace.nitech.ac.jp/matu2/index.html">http://archi.ace.nitech.ac.jp/matu2/index.html</a> ) and Tobishima Corporation.
<b>Used techniques :</b>	Endoscope f=5.5, 3CCD, SVHS, background: chroma-key, mechanical / electrical camera movements, more direct spotlights.
<b>Questionnaire Remarks :</b>	The design and visualisation group of the Matsumoto Laboratory mentions the great importance of 'eye-level views' during all kinds of design tasks. The 'birds eye view' is less often used, but instead a dynamic view is used to get a better insight during the design. Such 'views in motion' are made by moving the eye along the sides of the model, by real-time endoscopic movements and by video recording and play back. The dynamic visualisation tells the designer and the client more about the atmosphere of the site than static images do.

[bij tekening 29p07 ten minste zo groot dat cijfers en letters leesbaar zijn]

**Overview of the plan :**

1-6 = places where we took a picture.

a = This main pavilion has the image of one wing of a windmill, and the function of this pavilion is meeting facilities in the region.

b = The mound in the plaza gives the level change to the flat site.

c = Flowerbed

d = Water springs up from the 'mountain' and becomes a 'river'. The flow from the river is poured into the 'sea'.

e = The pyramid type gate invites and pours water, it is in symmetry with the main pavilion and becomes a landmark.

f = The secondary pavilion has the image of the wing of the windmill just like the main pavilion. It improves the unified feeling of the space, the function of it is a toilet.

g = The change in the texture connects the two squares, divided into parts by the road. It has the image of the polder which extends from the water.

h = The walls provide for an approach space. People feel the flow of the water and the gravity by the slope, and approach the entrance.

**Project**

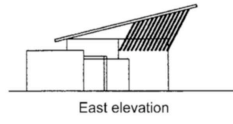
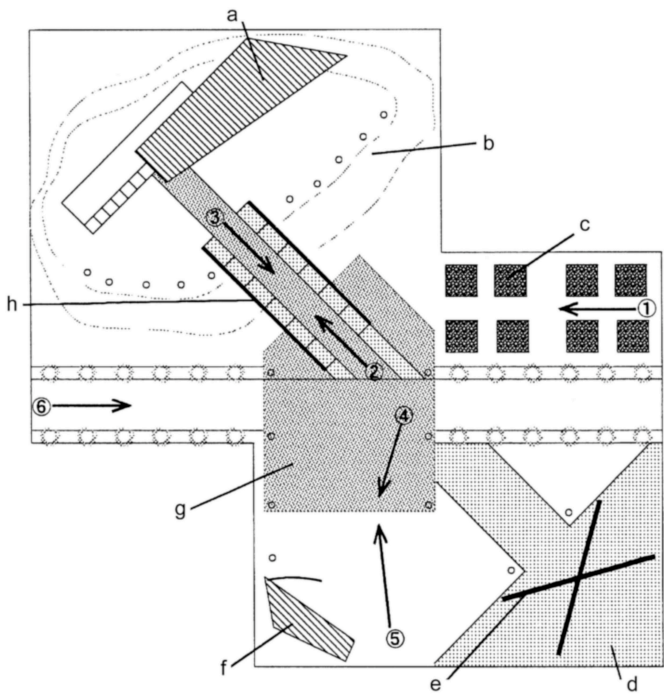
A dynamic, elegant - and potentially very feasible - planning proposal, coupled with a convincing design visualisation.

The team from Nagoya's Matsumoto lab. succeeded in creating a complex, yet balanced plan with different facets. The strategy followed is to offer an interesting, varied public space with two strategically placed, well articulated pavilions (a smaller pavilion close to the housing and a larger one facing the open landscape).

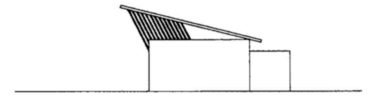
In the model these two buildings have been worked out effectively, suggesting a visually convincing level of detail. Further aspects of the plan included a pyramid shaped gate, integrating water and accentuating the main diagonal axis. In the central part there is an area with special paving textures, creating an in-between realm where the axis crosses the road, overlooking geometrically ordered flowerbeds and a walled bridge towards the main pavilion, which has been raised by introducing different ground levels (see the plan with specific explanations).

The design sensibility demonstrated in this plan could perhaps be considered typically 'Japanese' as in this plan there are also undertones of traditional Japanese garden design, using contemporary forms and materials. However, the impressions created suggest that this composition would certainly not be out of place in the typically Dutch locality of the workshop site.

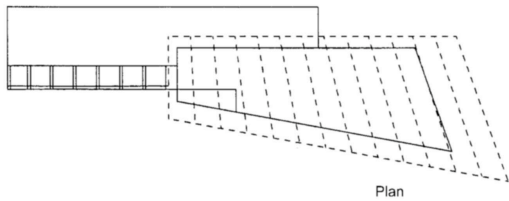
The flowing visual impressions of the different places and routes through this sympathetic plan were created using the head mounted, highly interactive optical Endoscopy facilities of the Nagoya laboratory.



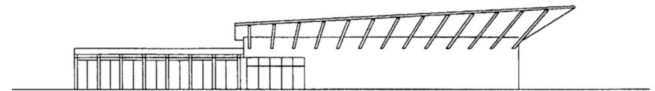
East elevation



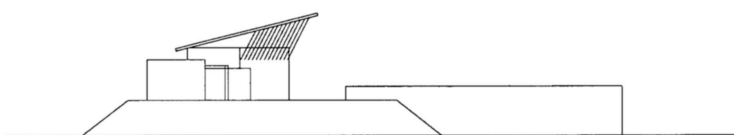
West elevation



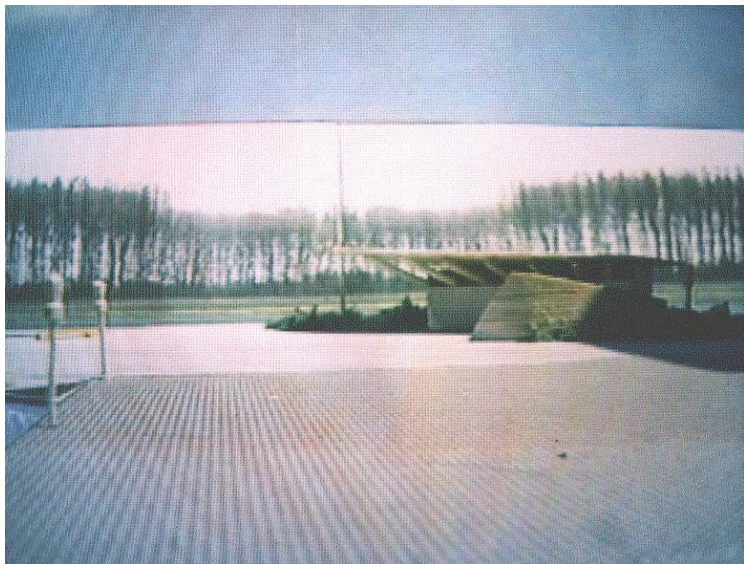
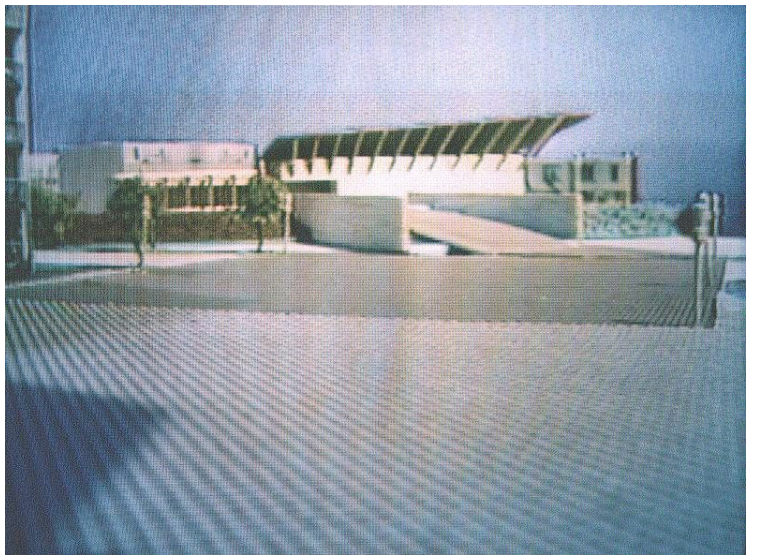
Plan



North elevation



Elevation





**Design & Visualisation :** Arpad Pfeilsticker 1, Frue Cheng 2

**Institute :** 1 Universität Stuttgart, Architektur und Stadtplanung, Simulationslabor am Städtebaulichen Institut, Keplerstrasse 11, D-70174 Stuttgart, Germany. Phone: +49-711-121 3374 Fax: +49-711-121 3225.  
2 National Taipei Institute of Technology, Department of Industrial Design, No1, Section 3, Chung-Hsiao-E.RD, Taipei, Taiwan, R.O.C. Phone: (008862)7712171-2822 Fax: (008862)7317259.

**Used techniques :** Full moving endoscope-system 2,5 x 4,0 m; Stortz 0' / Stortz 90' / Photo Perspectar 90' endoscopes; Kobold DLf 400 SES Daylight system; Videosystem: U-matic low band / S-VHS / VHS

**Questionnaire Remarks :** No information available.

### Project

An evocative example of a 'film set' approach, particularly in creating a night-time atmosphere. By manipulating a relatively simple, almost 'sketchy' scale model, surprisingly convincing images were created. The model incorporated sufficient detail (for instance printed structures on the ground) to acquire a sense of scale when viewed with the optical endoscope.

Special elements such as an adventurous climbing rock were instrumental in creating an effect of excitement and activity. In the video production of the plan this atmosphere was underscored by an effective use of music and background sounds. Also the use of human figures and urban design elements such as street lights (in both the daylight and the night-time simulation) were instrumental in conveying the message of the design. The perfection of the video production, incorporating varied video footage and suggestive use of background noises, such as footsteps drew extensive response during the discussion (including mild criticism that the footsteps were perhaps too hurried).

A particularly impressive aspect of this production is the extensive use of miniaturised night lighting. For this project an integral lighting plan and special types of light fixtures were developed (for more information see: Frue Cheng's paper 'Visual Simulation Techniques on Environmental Cognition Systems', included in these Proceedings).

The project shows the effect of a creative fusion of a professional scenographic approach and technical innovations in modelmaking and miniature lighting technology, and is a good illustration of the specific opportunities for night-time environmental simulation using Endoscopy.



- Design :** Ryuzo Ohno (rohno@nc.titech.ac.jp)  
Masashi Soeda (msoeda@nc.titech.ac.jp)  
Takuya Imai, Rieko Tsujiuchi
- Visualisation :** Ryuzo Ohno, Masashi Soeda  
Ryoichi Yanai, Yoshiharu Matsuda, Hirofumi Aoki
- Institute :** Department of Architecture and Civil Engineering  
Tokyo Institute of Technology, Dept. of Human-Environment  
Systems 4259 Nagatsuta, Midori-ku, Yokohama, 226 Japan  
Phone: + 81 45 924 5613  
Fax: + 81 45 922 3840
- Used techniques :** Endoscope, Olympus OM-1
- Questionnaire Remarks :** The design and visualisation group of the Department of Human-Environment Systems is satisfied with the context model and the use of texturemaps as far as this scale of design task is concerned. They emphasise the use of movement in visual presentations because of the subtle changes in view that occur. The six given viewpoints for the workshop presentation are not sufficient, as they do not show these gradually changing views.

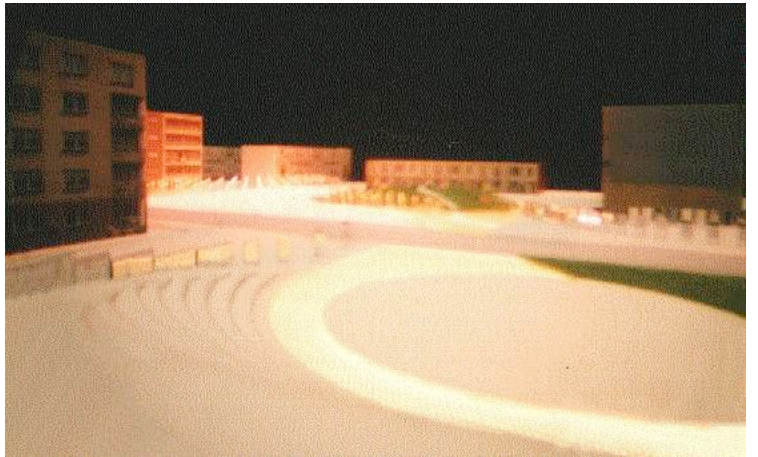
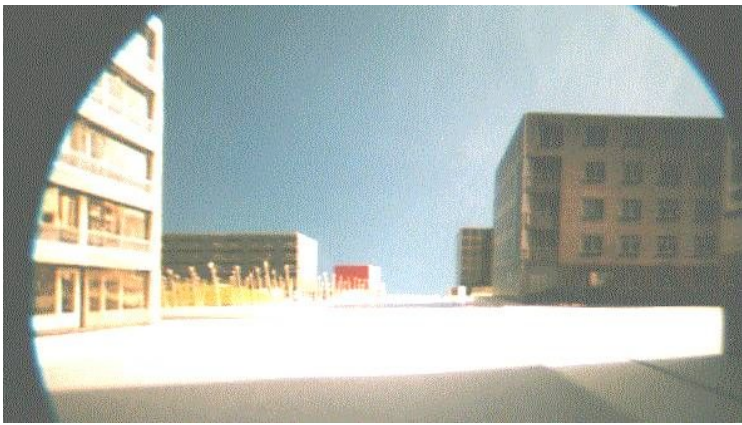
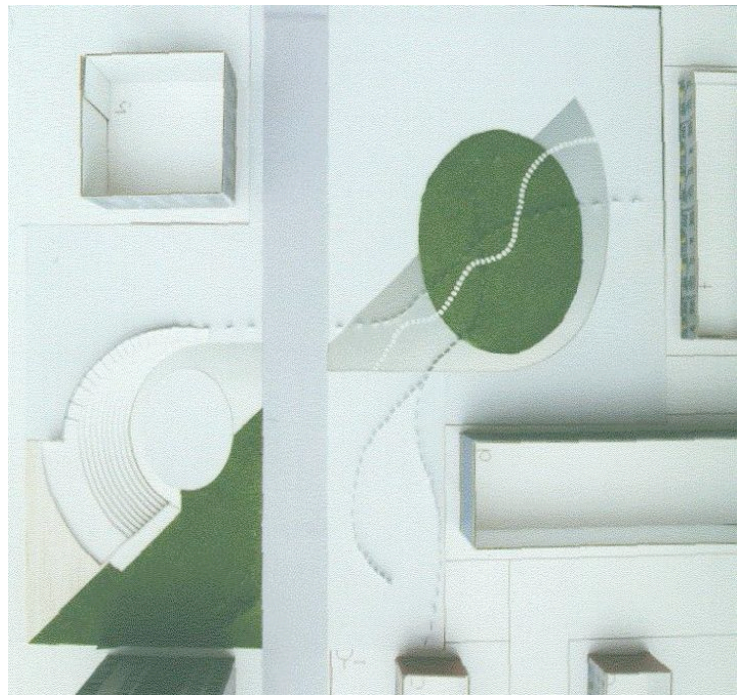
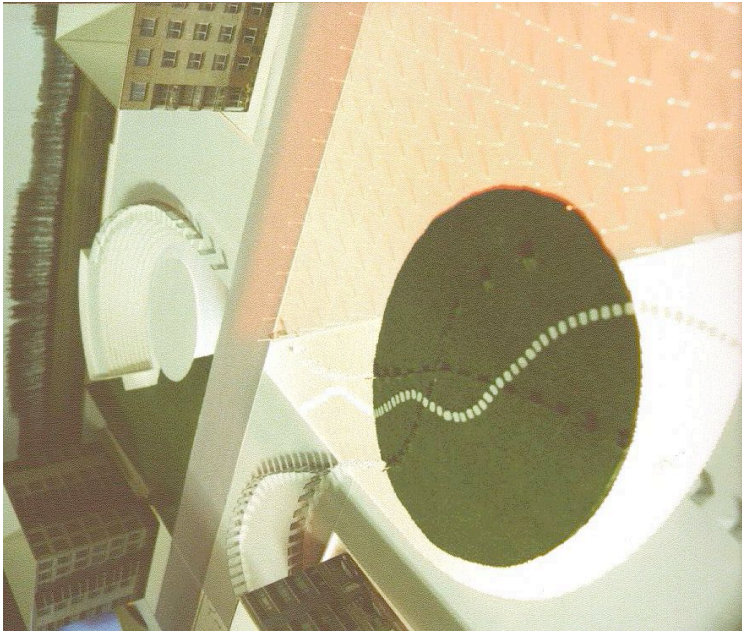
## Project

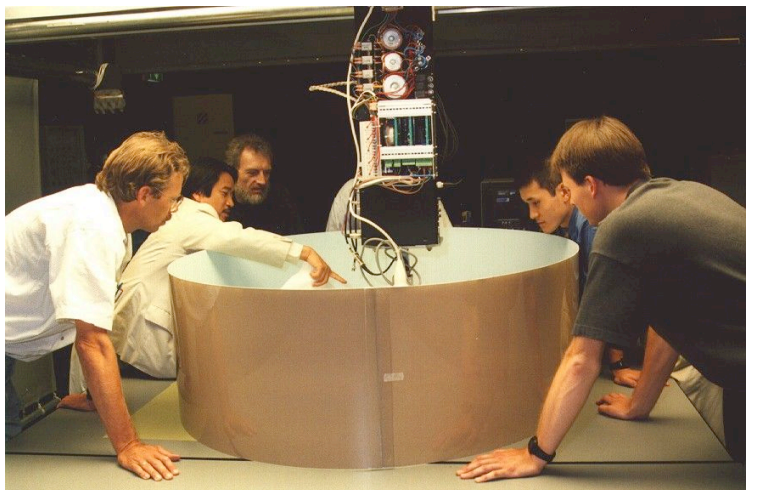
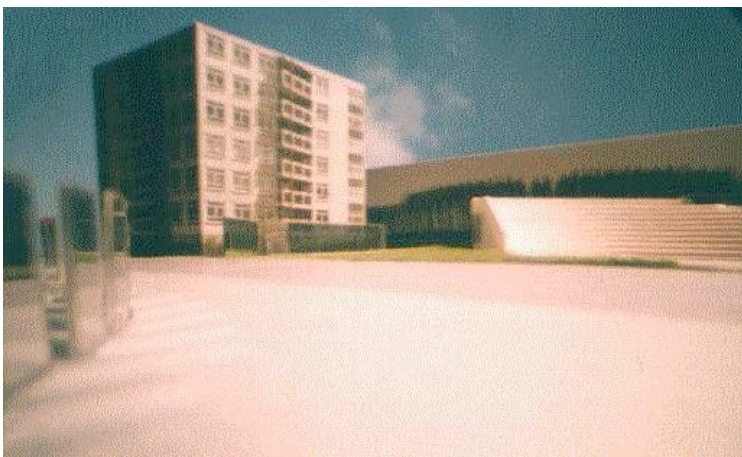
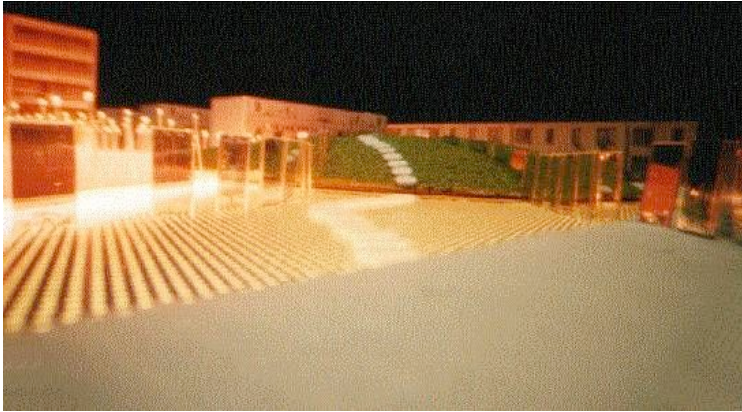
A sophisticated environmental design.

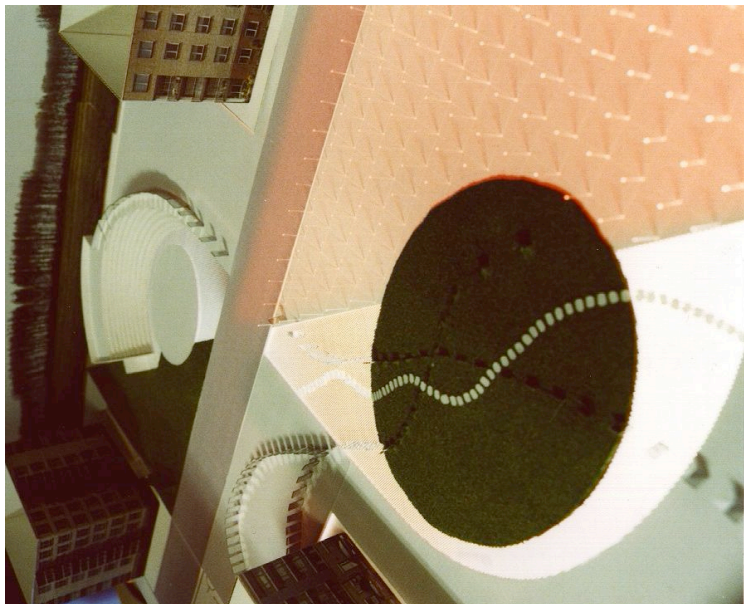
The environmental simulation project of this subdued, yet powerful design proposal appears to spring from the poetic, spiritual design approach customary in traditional Japanese garden composition, yet absorbing a present day (and even futuristic) choice of materials and atmosphere. While the overall impression of the design is one of controlled elegance, incorporating circular and geometric shapes, the emphasis lies on the dynamic, 'scenographic' experience of the composition.

The model, mainly made of white elements with green accents, shows two major parts: a crescent shaped 'theatre' on the landscape side and a more subdued formal 'garden' on the side of the buildings, incorporating suggestive, high tech transparent plastic rods distantly reminiscent of bamboo bushes. The two major parts of the spatial composition are linked by an adventurous, meandering path, with an emphasis on the middle of the route.

The potential of the plan comes to life clearly when perceived from an eye level viewpoint, either in serial vision (for instance in a series of photographs, as prepared for the conference), or in flowing motion (using the moving endoscope as was demonstrated during the workshop sessions in Delft). Besides paying attention to the daytime experience, the designers conceived a true metamorphosis of the design elements in the plan, which will light up in the evening, creating a contrasting (but complementary) night-time experience.







- Design :** Evelina Vereshchagina, Marina Gorskikn, Angelica Gorobets, Natalya Frolova
- Visualisation :** George Yesaulov, Evelina Vereshchagina, Marina Kiriyenko
- Institute :** Rostov State Architectural Institute, 39 Budennyovskiy pr.344082 Rostov on Don, Russia.
- Used techniques :** Electronica 822 video, Kodak Gold-200 film, Mamiya 1000 Camera, more direct spotlights, dark background. In the process of printing a yellow filter was used in order to get the most natural colours. During photoshooting the model was lit up by halogen lamps 'Foton-500'.
- Questionnaire Remarks :** The group of the Rostov State Architectural Institute is satisfied with the context model as it was provided for the workshop. They do not think the model needs more details, because the main task is to create a set of design images (the purpose is 'imaging imagination'). At a certain moment during their work, when they tried to give special attention to the composition of the space and the forms, they would have preferred a less (photo-)realistic model in order to get a more fundamental image of the design. The group is more or less familiar with Dutch city extensions and recognises 'the buildings with a cosy human scale due to their low floor level'. The six static viewpoints do not represent the design fully, because it is impossible to look around to the surrounding. The Rostov group's detailed description of their design ideas has been used as the basis for the project text.

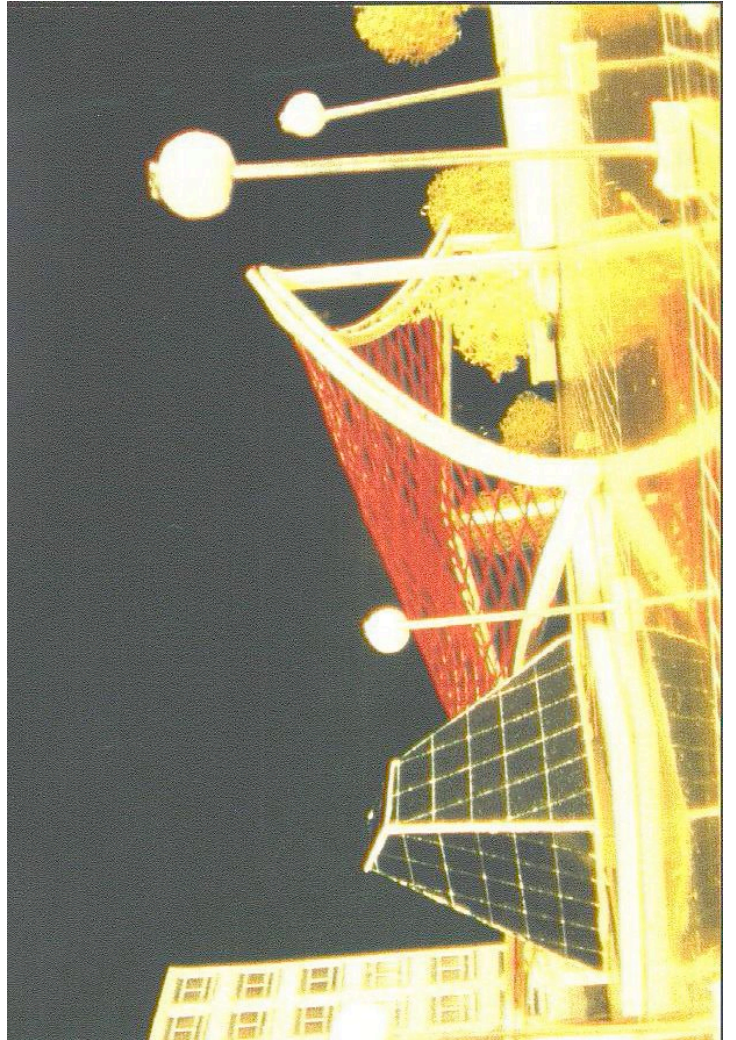
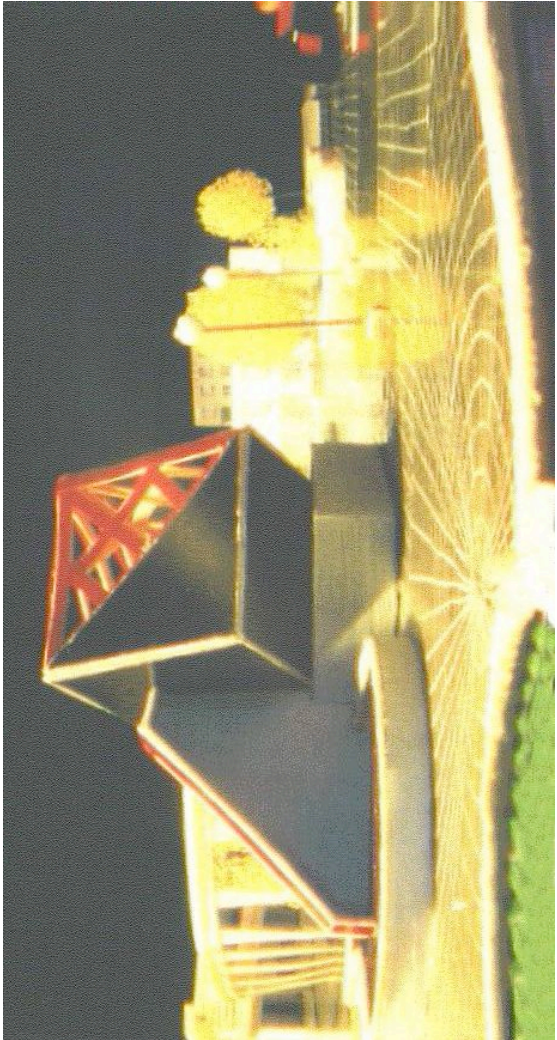
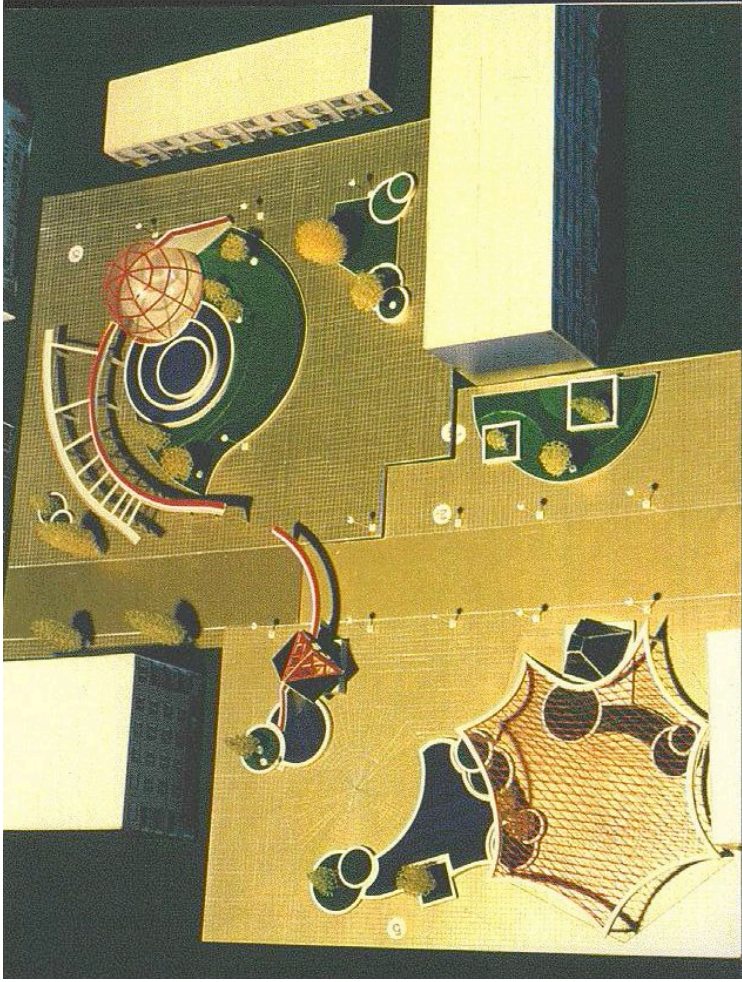
## **Project**

A lively, dynamic plan with a strong visual impact.

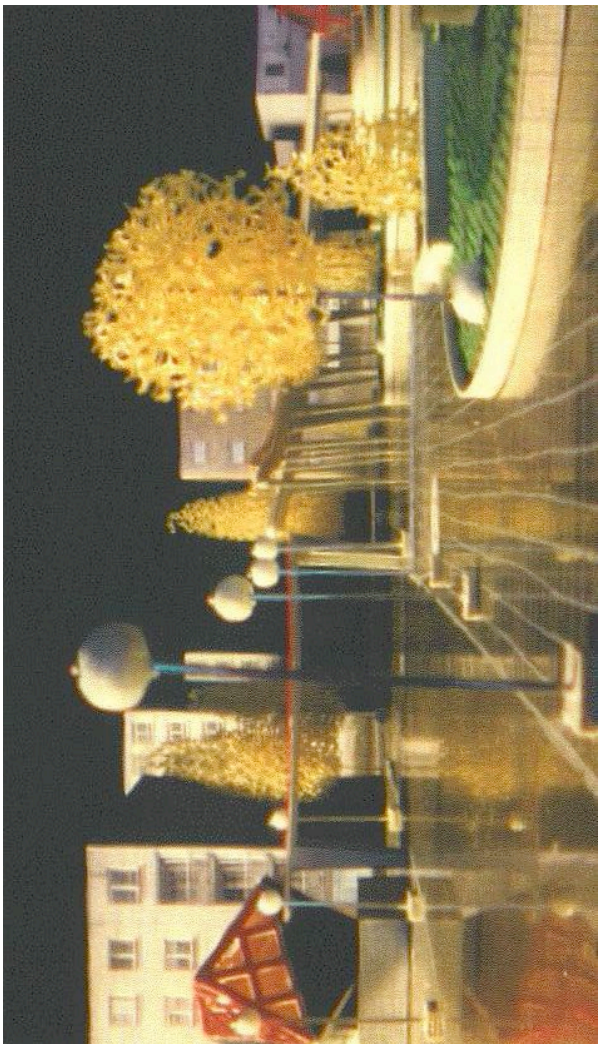
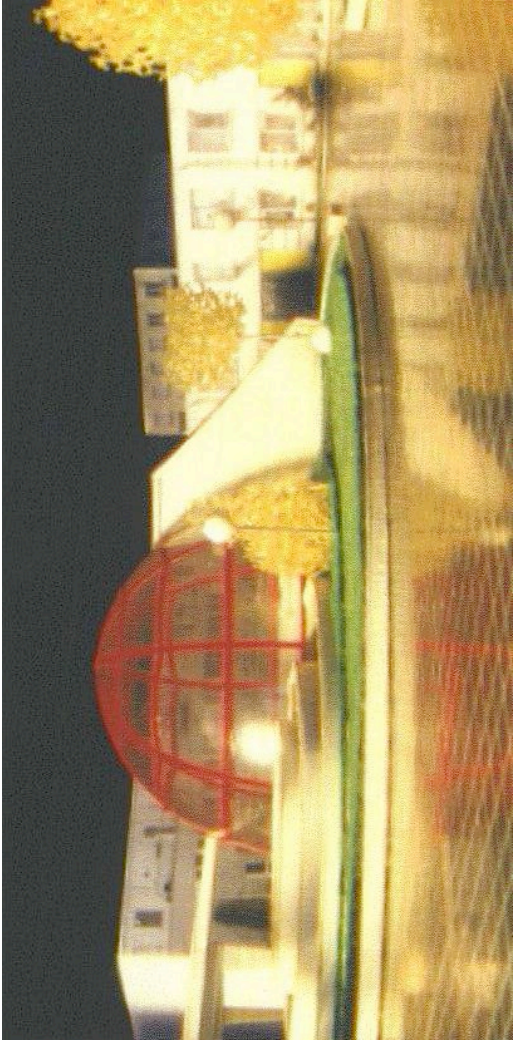
The team from Rostov State Architectural Institute developed the potentials of the undifferentiated site towards a positive new environment, rich in experience: with a sense of place and occasion. The authors of the project saw it as their task to create a unified composition in the space of the square, preserving its open character while at the same time introducing the appropriate human scale.

The formal approach to the design involves the use of curved, overlapping areas and distinct elements situated strategically within the open space. The composition consists of three primary forms: a hemisphere, a cube and a cut-off pyramid. These volumes can house communal facilities. A covered gallery runs across the site, beginning at the hemispherical pavilion. This covered walk allows for open views through the site at a pedestrian level. This covered route through the plan is a flowing line which runs across the two unequal parts of the square, contributing to an effect of one 'united compositional space'. According to the designers, the fourth - open - side of the square should remain unobstructed, so there are no buildings at this side. To avoid the impression of an unfinished composition, a semitransparent spatial structure has been situated here, allowing one to look out towards the extensive polder landscape. Flower beds, lawns and water basins are used to contribute towards creating a 'typically Dutch' atmosphere.

The plan visualisation makes use of suggestive modelling techniques. The dark background, in combination to the colourful elements of the model, contributes to an inviting, festive impression.





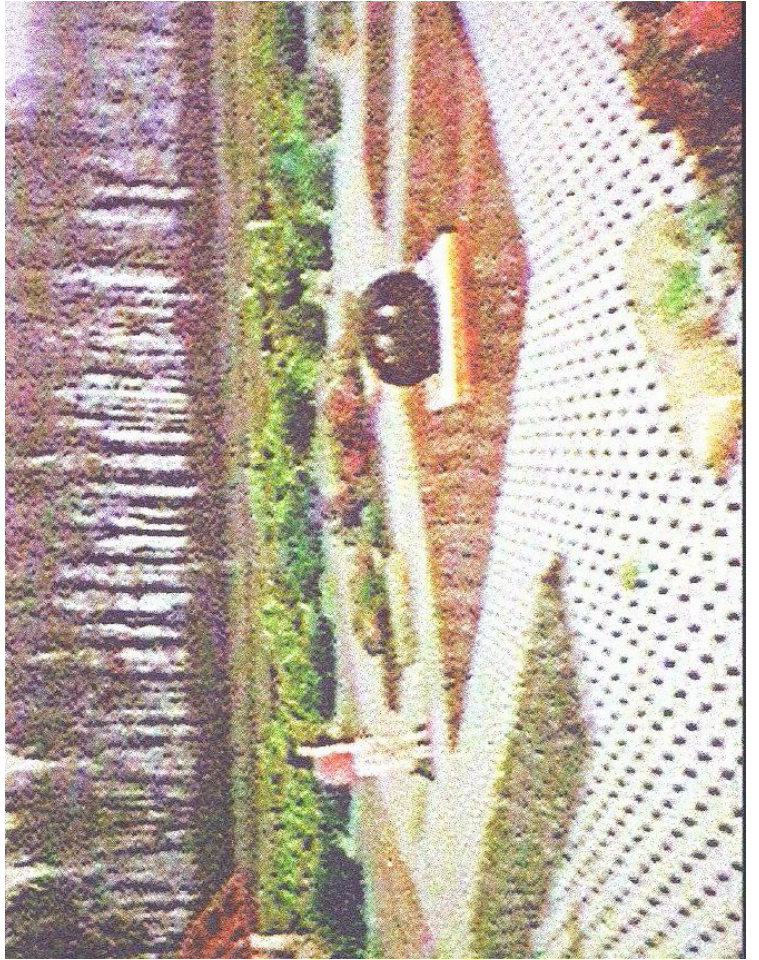


- Design & Visualisation:** Michael Matalasov, E. Matalasov, N. Kolenteyeva, Dmitri Berdinsky (bvl@icp.ac.ru or pager@vessotel.com first line of email message must be: vl#41799)
- Institute:** MARCHI, Moscow Architectural Institute (State Academy), Lab of Video Systems, Prof. Michael Matalasov, 11 Rozdestvenka str. 103754 Moscow K-31, Russia.
- Used techniques:** Endoscope, CCD type, camera G-100, VHS- tape editing, hand / mechanical guided camera movements, painted background, more direct spotlights.
- Questionnaire Remarks :** The group mentions the model with texture maps as one of the best and most 'compact' ways to provide a designer with information of a building site.  
As a starting point for their design, they made small tests to find the optimal materials to be used in the design. They prepared a set of elements which were moved and combined in the design process. Both dynamic visualisation and single perspective images have their own task in a presentation. The viewpoints and the routes for the endoscope have to be set after the design is made, in order to present the whole design adequately. Therefore the six previously set viewpoints can have a strange influence on the development of design.  
The MARCHI group stresses the importance of such EAEA workshops and encourages this kind of combined research effort.

## **Project**

In the entries from Moscow, the route suggested for the workshop became a major theme for the development of the plan. As can clearly be seen in the plan, the design is conceived as a path through an adventurous garden landscape. This park comes across as a green, open oasis in the urbanised surroundings, a kind of 'antidote' for the relatively dense housing in the area. Much attention has been paid to the 'furnishing' of the model. The use of coloured textures for street and paving patterns, different types of vegetation and human figures as functional scale objects contribute to bringing a specific (Dutch or Russian?) atmosphere across to the audience. On the basis of the same plan the team from the Moscow Architectural Institute prepared two presentations, one using optical means and also a computer aided visualisation (see the other Moscow entry in the digital category). It is interesting to compare the results from these two approaches. The optical presentation made extensive use of video techniques. A notable aspect of this video production is the way in which an attempt was made to create a 'Delft' atmosphere using video fragments from a presentation by Jan van der Does in Vienna in 1995. This led to surprising effects such as the (relatively small) tower of the station of Delft appearing as a landmark the size of a major church tower in the background of this suburban location.





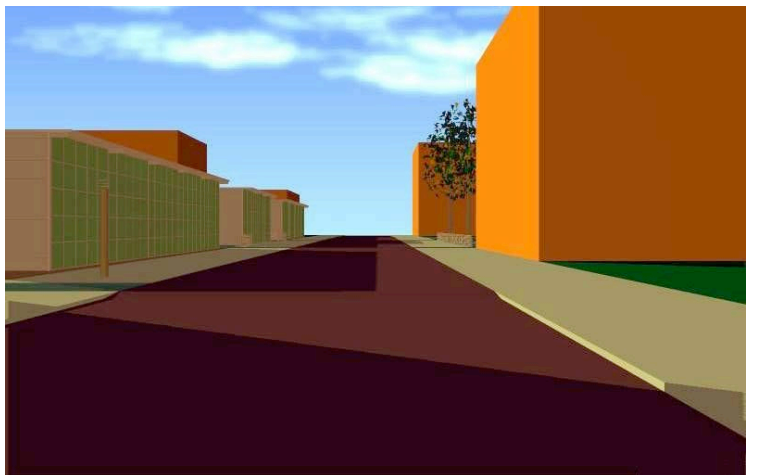
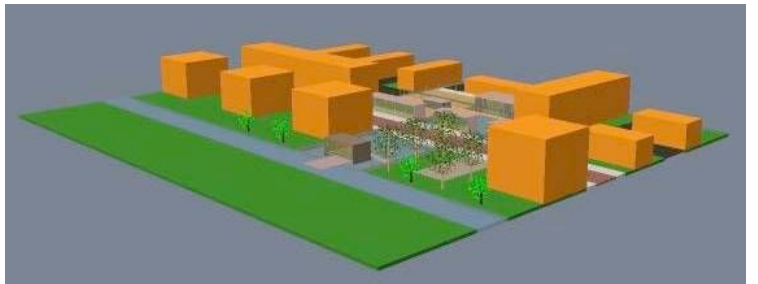
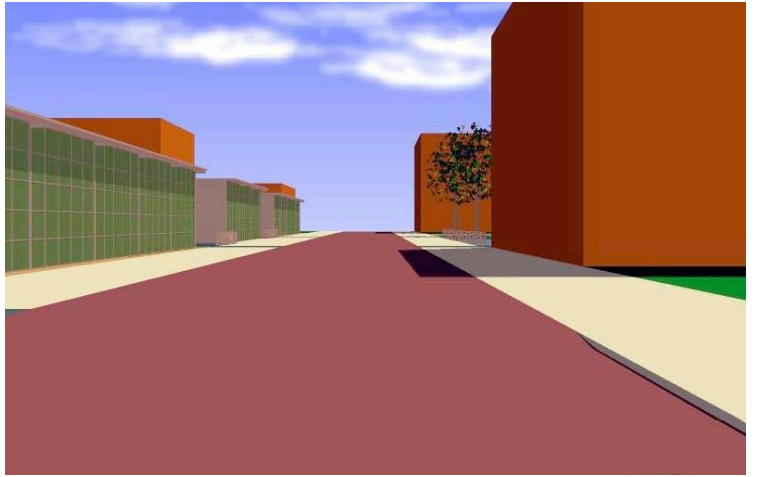
- Design :** Gebhard Friedl and Bob Martens (bmartens@email.tuwien.ac.at)
- Visualisation :** Gebhard Friedl and Bob Martens
- Institute :** Department for Spatial Simulation (Full-Scale Lab), Technische Universitaet Wien, Karlsplatz 13/2561, A-1040 Wien, Austria.  
Phone: +43-1-58801-3382 or 3383. Fax: +43-1-5041147. <http://info.tuwien.ac.at/raumsim/>
- Used techniques :** Archicad 4.55
- Questionnaire Remarks :** The photo-realistic information in the workshop model is mentioned as being effective in both the initial and the very final phases of the design process. During the rest of the design process the photo textures are not seen as an actual help.  
The general urban setting of the site is mentioned as being a bit arbitrary and uneventful. A real 'Dutch town image' could be more like extensions in Rotterdam by the Mecanoo office or Amsterdamse School style buildings.  
For a good presentation of the design some birds-eye views are necessary, in order to access the general setting of the town planning scheme; small as it is in this case.

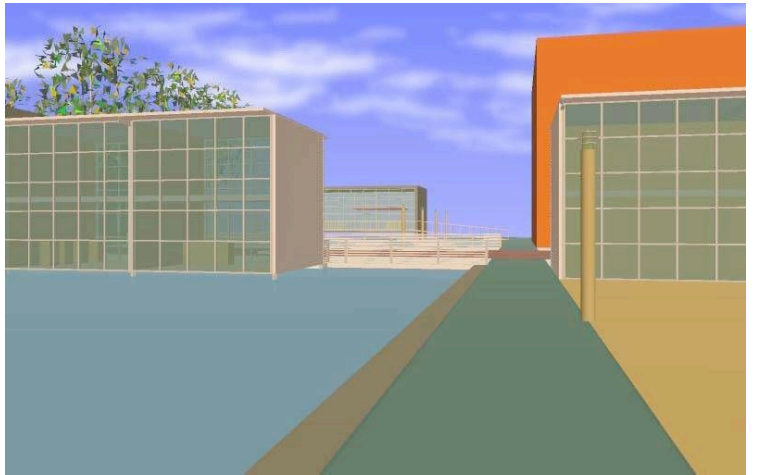
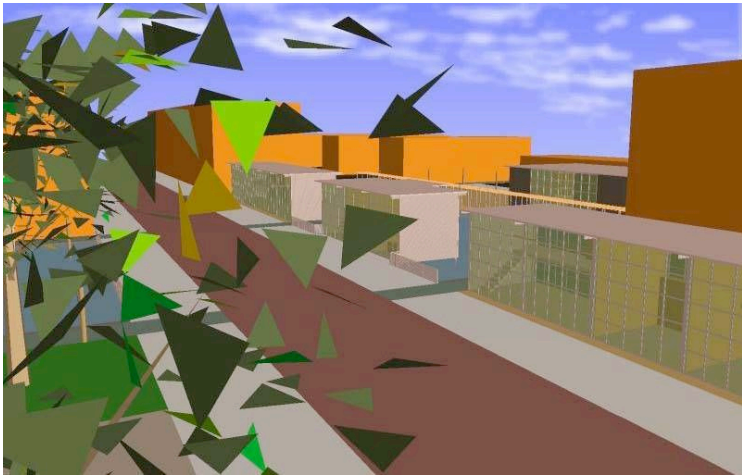
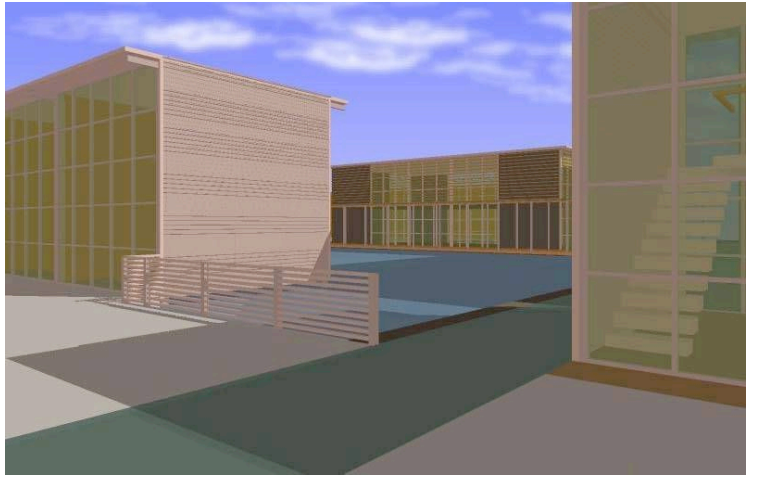
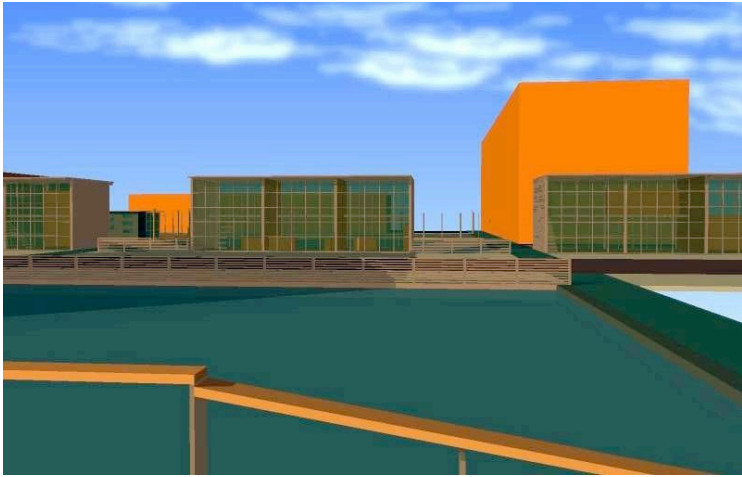
## Project

A balanced, professional urban plan. The design proposal from the Vienna Full Scale Lab group, making use of digital means, introduces a clear spatial structure into the given site as well as formulating specific (communal) functions. In the words of the designers they "lay down specific urban-constructional criteria and design determining impact factors" (see the workshop paper with the ambitious title: 'The Effects of Visualising Imagination in Virtual Reality Regarding the Imagination of Reality in Actual Reality', included in the Imaging Imagination web-site [www.bk.tudelft.nl/GTM/Media/eaea/imim/](http://www.bk.tudelft.nl/GTM/Media/eaea/imim/)).

The design strategy in this plan is to weave a pattern of orthogonal paths and pavements, thus creating three main areas for articulated, bordered urban spaces. The most apparent intervention is to position three blocks, containing shops, a bank and a post office, parallel with the road with a linear pavement in front of them. These elements serve as a boundary, creating an urban square on the housing side (including two buildings for neighbourhood functions, incorporating water) and two distinct spaces on the side facing the open landscape (an open space with a pond and a café pavilion with a terrace, bordered by another space with trees; as it were 'pulling' the open landscape into the site).

This somewhat rational, elegant plan is finely detailed, particularly in the buildings, even offering a glimpse of the interiors. Unfortunately it was not possible to use the facade textures of the workshop context model. This leads to a visual discrepancy between the hard orange blocks of the 'existing', surrounding buildings and the refined additions. It would have been interesting to see how the two kinds of model would have worked in combination...



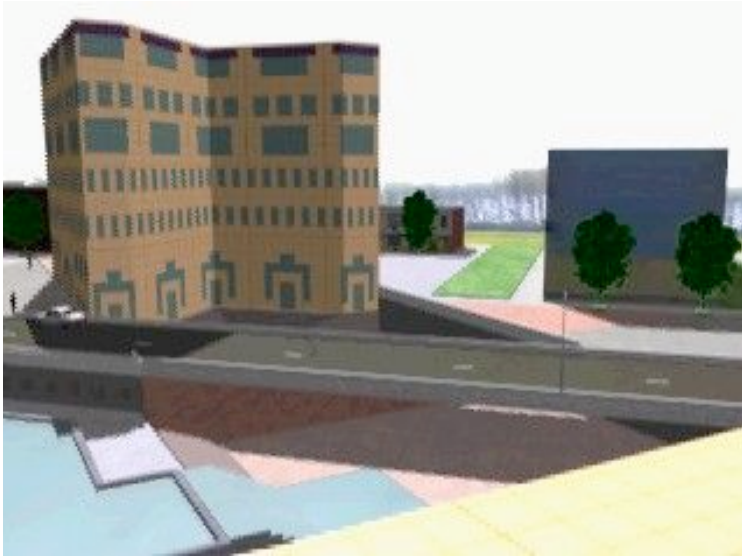


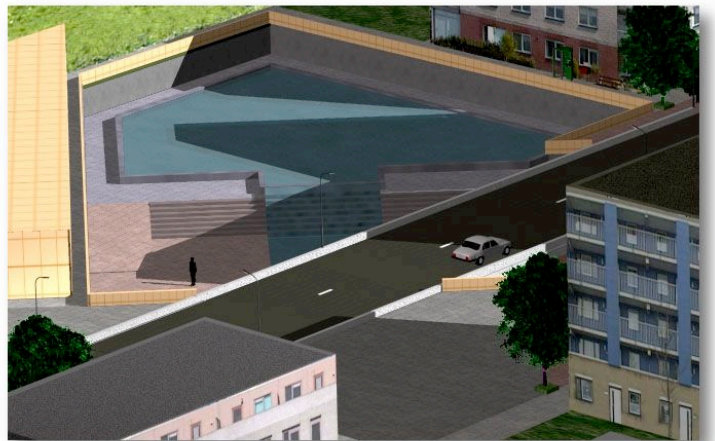
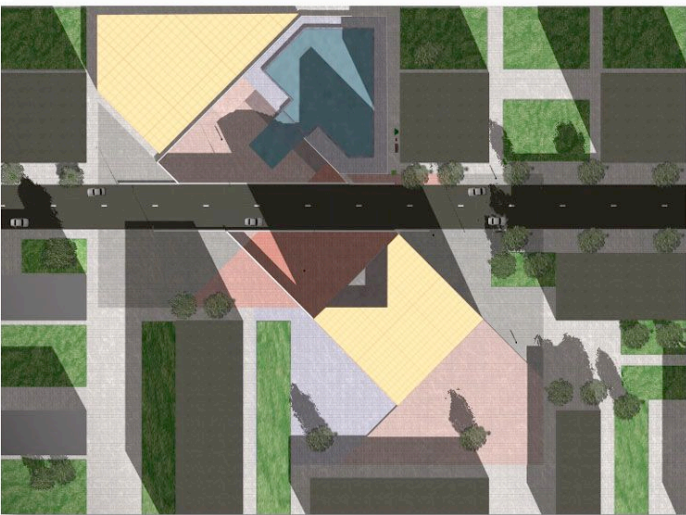
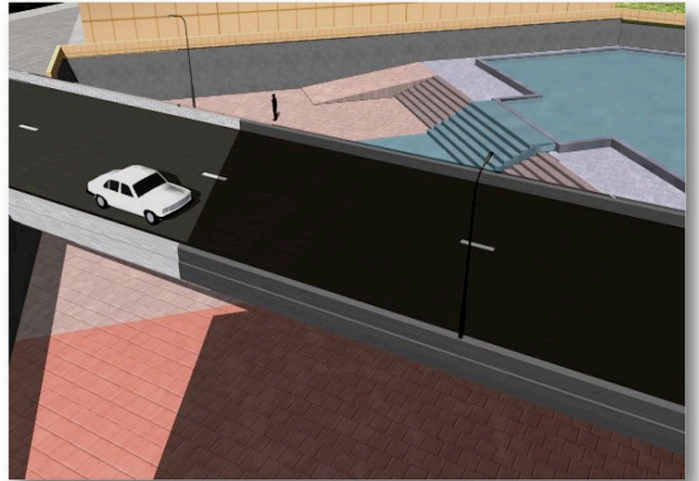
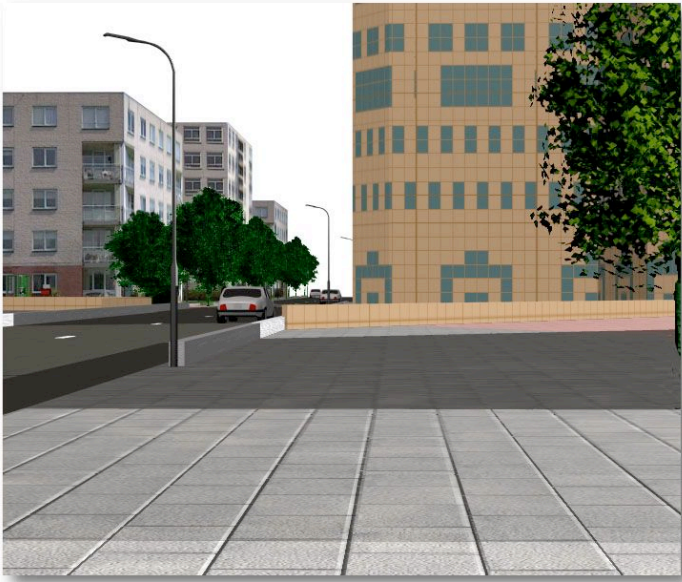
- Design & Visualisation :** Paul de Ruiter (p.deruiter-2@bk.tudelft.nl)  
Ernst Janssen Groesbeek (e.janssengroesbeek@bk.tudelft.nl)  
Amin Amin (a.amin@bk.tudelft.nl)
- Institute :** Delft University of Technology - Faculty of Architecture  
Department of Building Technology, office 5.50, Prof. Sevil Sariyildiz  
Chair "Technical Design and Computer Science"  
Berlageweg 1, 2628 CR Delft, The Netherlands  
Phone: + 31 15 278 44 85  
Fax: + 31 15 278 41 27 <http://www.bk.tudelft.nl/Informatica/toi/www/index.html>
- Used techniques :** Computer software: AutoCAD and 3D-Studio MAX 1.2.  
Render type: phong-shaded, raytraced shadows, textures materials / facades, atmosphere (fog) and background.  
Light set-up: more spotlights.
- Questionnaire Remarks :** The model with texture maps is mentioned as a good visual and material reference for the design process. More 3D geometry in the buildings is not needed; enough information is given to form a basic impression of the site.  
It was difficult to explain the whole design with only six viewpoints. More freedom to choose different adequate reference points is necessary.  
The group, involved with knowledge covering a broad variety of Information and Communication Technologies, mentions the importance of this kind of workshop and the organisation of lectures and courses in this field. A new development supported by them is the set-up of Virtual Collaborative Design Studios, in which groups of students from different institutes make a design by using the Internet, CAAD and Virtual Reality.

## Project

The contribution from the Delft Technical Design and Computer Science group (Building Technology) is notable for its high level of visual detailing. This is particularly remarkable as the plan and its visualisation were conceived in a typical 'competition' setting, starting only three days before the conference. To cope with this short time span, the tasks were split up amongst the team members, which apparently did not have a negative effect on the result. The presented project is the outcome of a truly collaborative, computer aided architectural design process. The inconsistencies of the original digital model, such as false perspective in balconies and cars as part of the facade textures were corrected at the offset. The basis for the plan is a geometric ground pattern, which leads to the introduction of 45° angles into the design context. Two characteristic elements of the proposal are a new high rise building (employing texture mapping techniques using a specially developed facade pattern) and landscaping extending underneath the 'existing' road. The visual detail goes as far as pavement tiles and street lights which contribute to a sense of scale. While the buildings have 'real' shadows, use is made of a familiar kind of computer sky (also appearing in the entry from Seoul). The presentation made use of sophisticated computer animation, at first following a car and then taking off for an aerial view of the plan. This unexpected camera motion led to animated audience response during the workshop presentation.



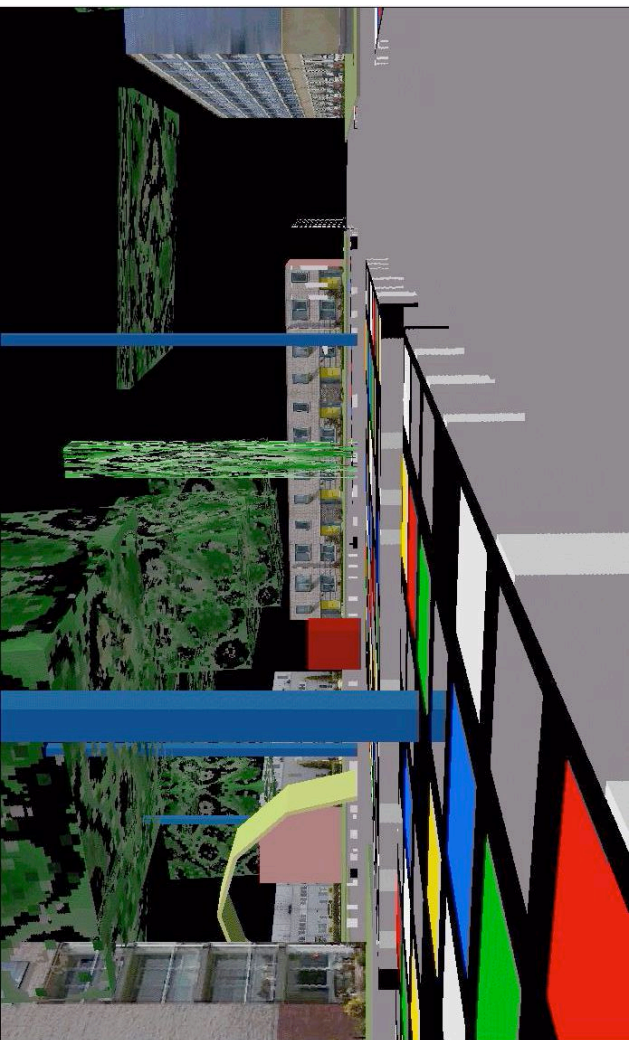
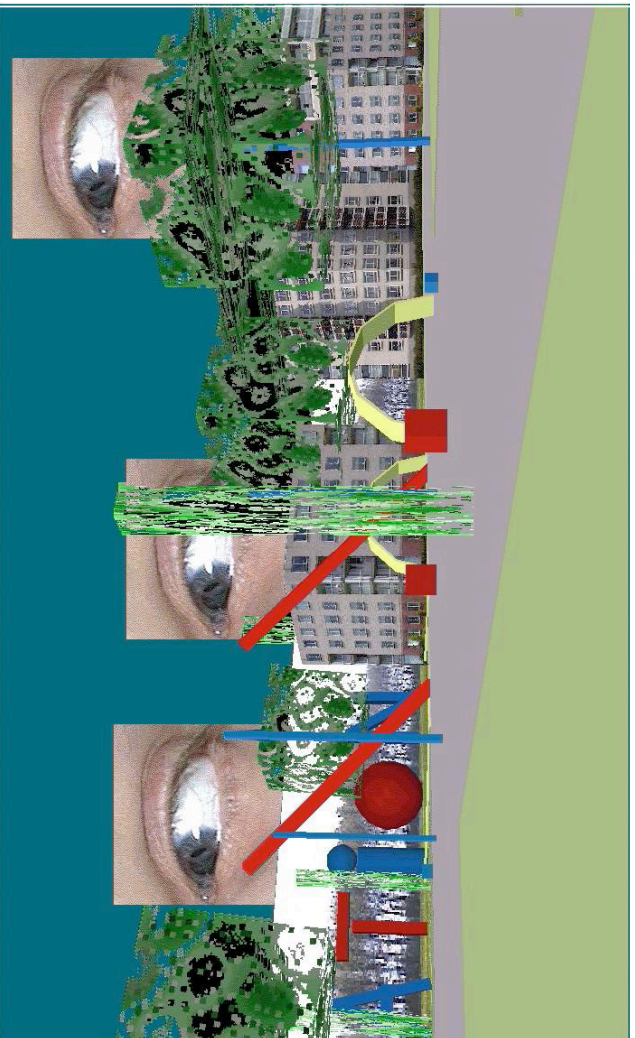
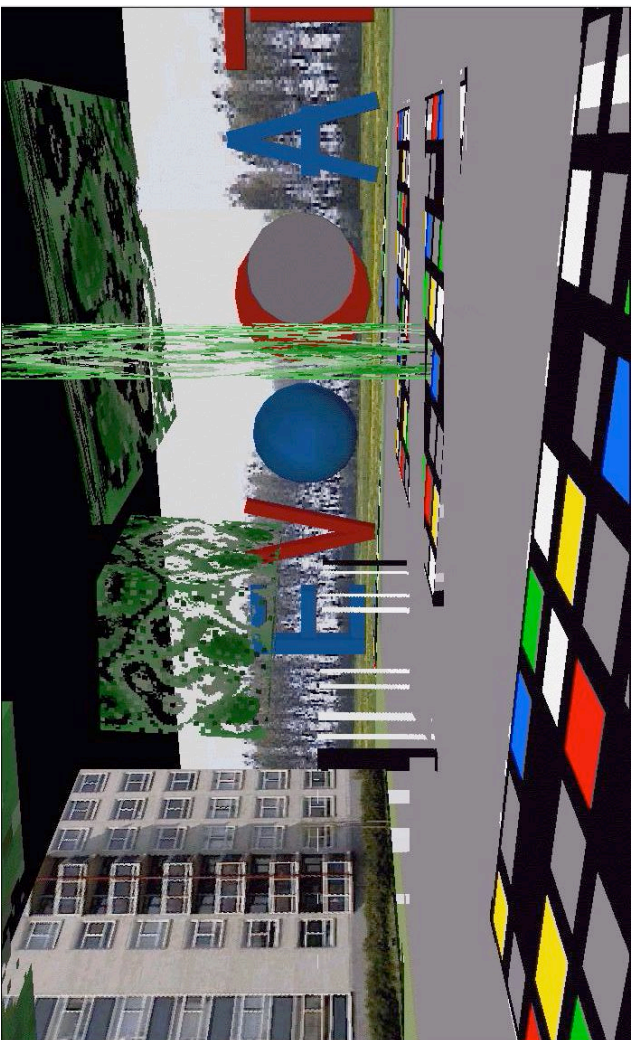


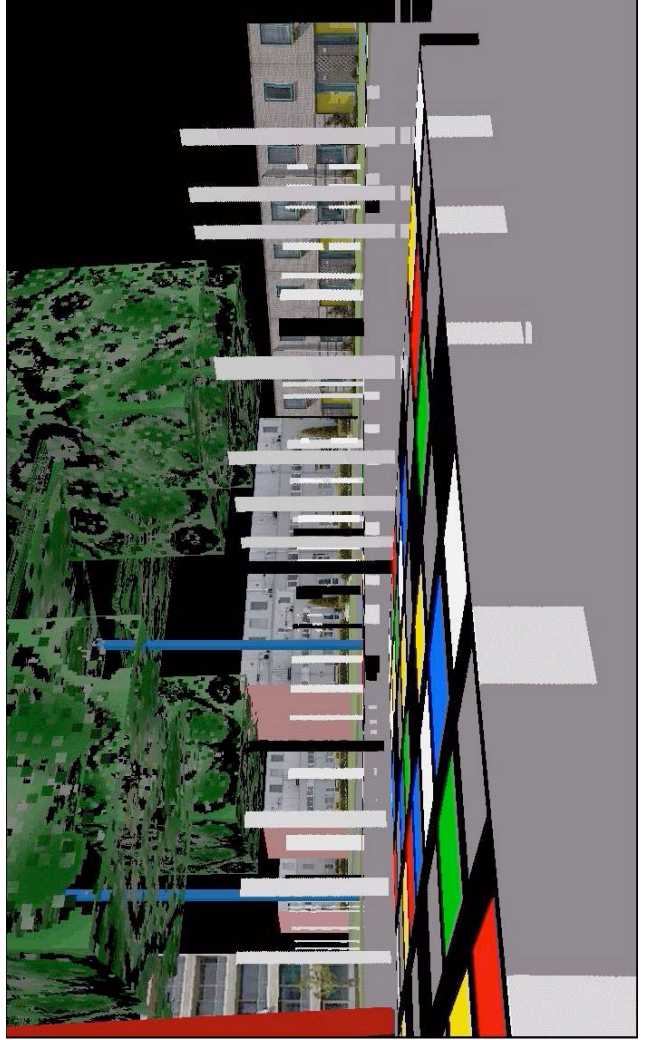
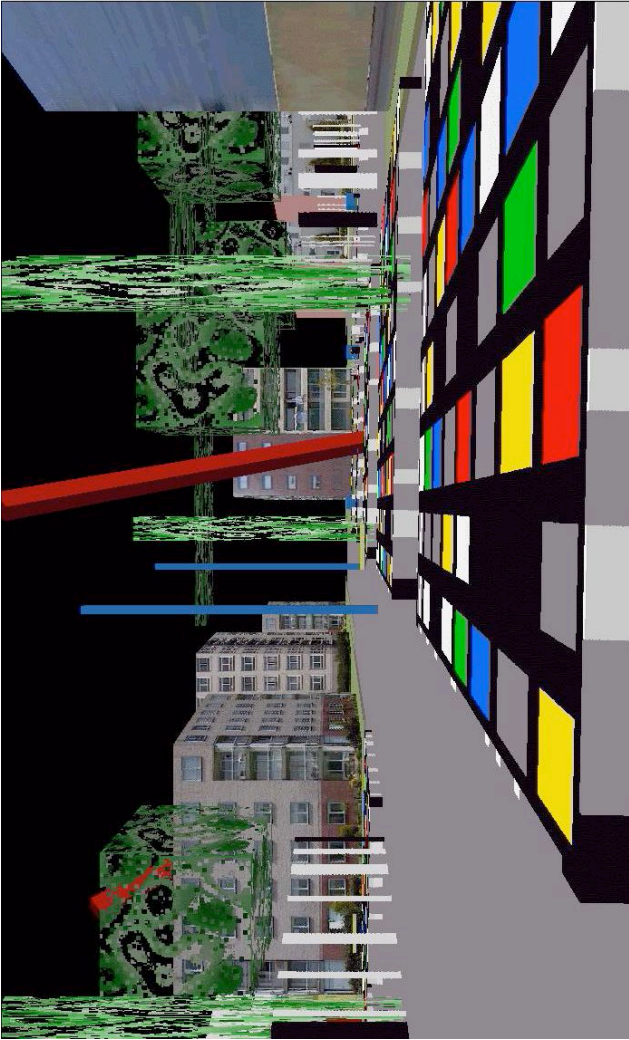
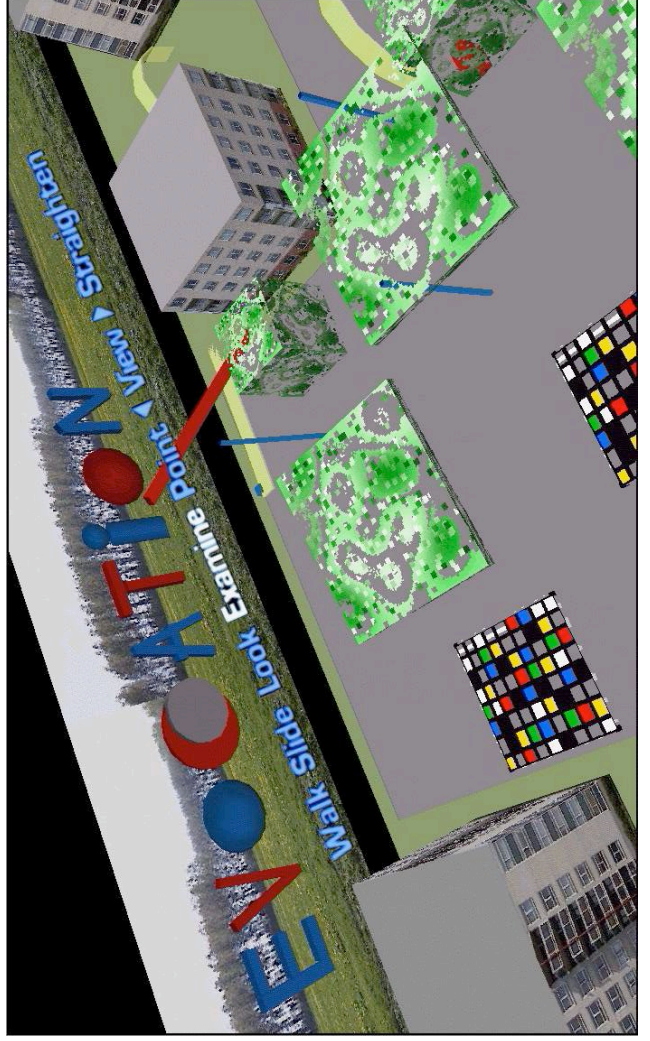
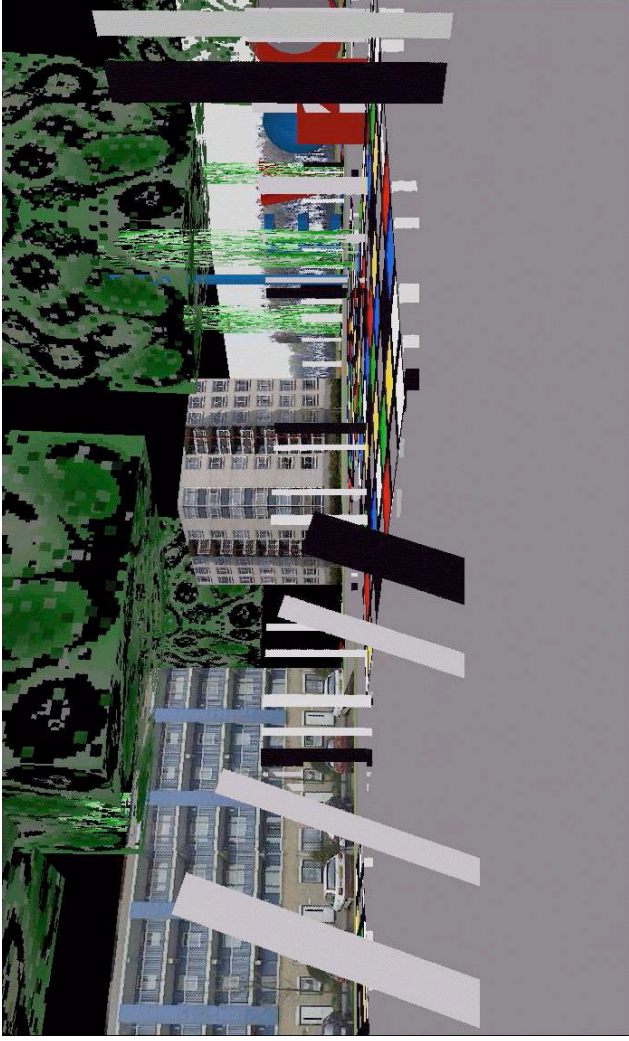


- Design & Visualisation :** Martijn Stellingwerff (M.C.Stellingwerff@bk.tudelft.nl)
- Institute:** Sector Media, Faculty of Architecture, Delft University of Technology, Berlageweg 1, 2628 CR, Delft, The Netherlands  
Phone : +31 (0)15/2781393 Fax : +31 (0)15/2784822  
<http://www.bk.tudelft.nl/GTM/Media/index.html>
- Used techniques:** Modelling: 3D-Studio MAX 1.2 Interaction: 3D-Studio MAX - VRML exporter plug in + text edit program  
Presentation: VRML-browser  
Image production: screencaptures from the VRML-browser, + digital collage techniques with photo-edit program.  
Render type: realtime VRML shading, no shadows, textures materials / facades + transparent Gif-images.  
Light set-up: more spotlights.
- Questionnaire Remarks :** “Well ... the questionnaire was set-up by myself, so I did not participate in answering it. I have tried to draw some general conclusions from the answers and comments in the questionnaires at the end of this overview of participants’ contributions.”

## Project

An ‘evocative’ contribution from the midst of the Media research group from Delft. The Imaging Imagination workshop was used to develop this pilot study, directed towards the further evolvement of possibly stimulating ‘virtual reality’ applications in urban design. Like the Bialystok contribution, this project is primarily driven by an inquisitive, designerly research approach, aimed at a fundamental regeneration of emerging (and existing) design media, particularly using digitised instruments. The theme is to create an interactive, ‘real-time’ environment meant to stimulate inspiration in the designer who should be able to activate elements of the composition, which can then be manipulated and can ‘evoke’ images. The designer is free to move through the environment and investigate the spatial organisation of interactive elements. The objects give colour and create structure within the model space. When they are ‘clicked’ on they may take on a new form and the viewer’s image changes. As such this project is not to be viewed as a final proposal for a concrete, urban plan, nor as yet as a finished digital design support product. In the present stage it can be considered as a playful and not yet fully working model, however with serious design media research undertones. What kind of imaging might inspire which kind of designer - and how - remains an object of discussion - and indeed for further study. Further research will be carried out in the coming time...





- Design :** Alexander and Katarzyna Asanowicz, Malgorzata Bartnicka
- Visualisation :** Malgorzata Bartnicka (mmm@cksr.ac.bialystok.pl)
- Institute :** Faculty of Architecture, Technical University of Bialystok  
ul. Krakowska 9PL 15-875 Bialystok, Poland.  
E-mail: jakima@cksr.ac.bialystok.pl
- Used techniques :** Computer software: AutoCAD and 3D-Studio R4.  
Render type: phong-shaded, raytraced shadows, textures materials /  
facades, background (sunset.jpg).  
Light set-up: one spotlight.
- Questionnaire Remarks :** The group divides computer models into : models for representation and models for actual design. The models for representation of a building site, such as the workshop model, do not need more 3D geometric details. Instead texture maps can be used to provide information of the site. Models which represent a new design need more details in their geometry. Especially for this workshop design task, in which the interference with the surrounding buildings is not so big, the model is adequate.  
Dynamic visualisation is mentioned as a more useful presentation technique than static images because people like to watch movies and through motions more information can be transferred.

## Project

A novel, experimental visualisation project, attempting to extend the opportunities of existing digital modelling techniques.

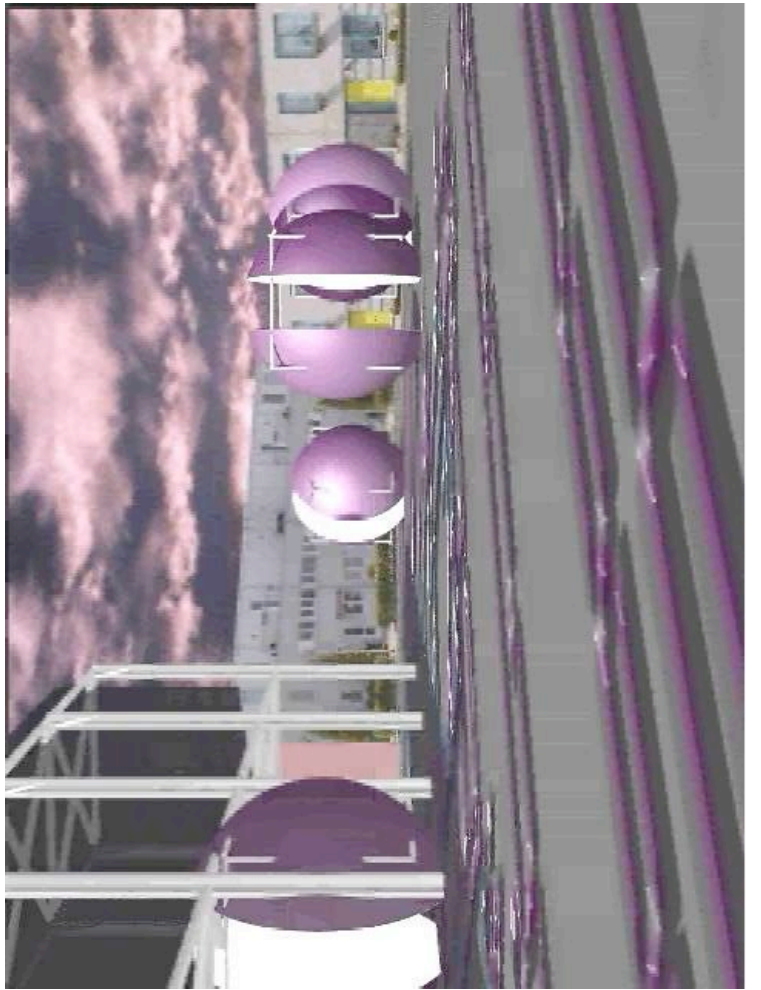
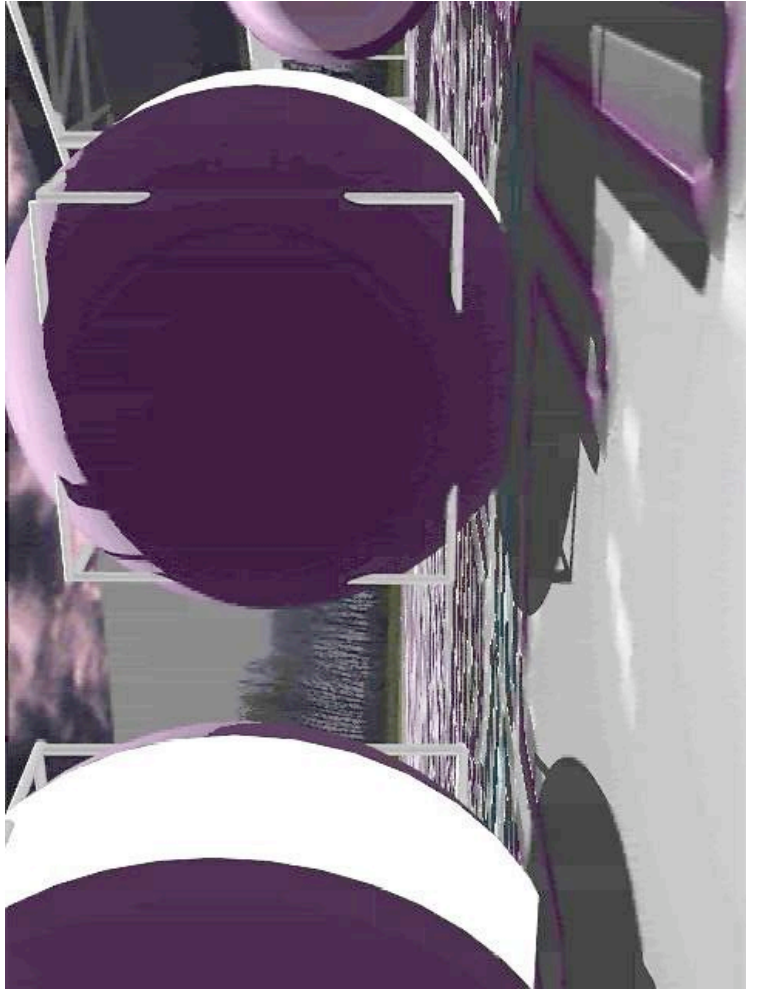
This original, mildly provocative contribution is the result of an ongoing series of studies by the Bialystok group aimed at using (and sometimes even misusing) existing techniques as design 'media' which may surprise and stimulate, offering the designer unforeseen shapes and solutions. The attitude is to shift the creative boundaries of contemporary design tools.

In this conceptual design visualisation another kind of 'world' seems to have been fused into the, originally somewhat dull, Dutch context. The title of the production is 'Squares and Spheres', the basis of the proposal being the introduction of primary shapes and elements onto the 'set'. These have then been manipulated and have further acquired suggestive, texture mapped, patterns and images. Of particular interest is the way in which elements have been transformed so that they take on a new role within the plan as a whole. An example of this approach is the use of a scanned compositional study, which is applied as a surface texture to the underground of the plan.

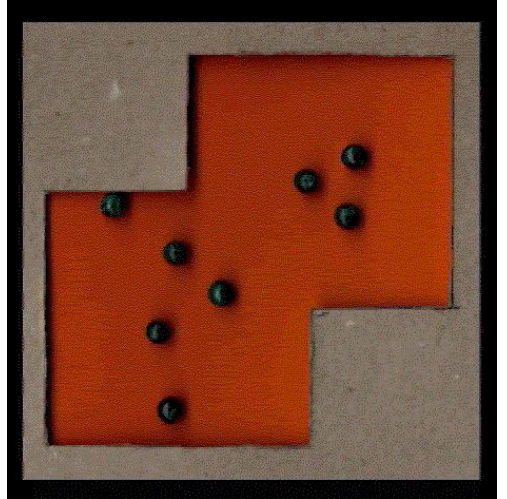
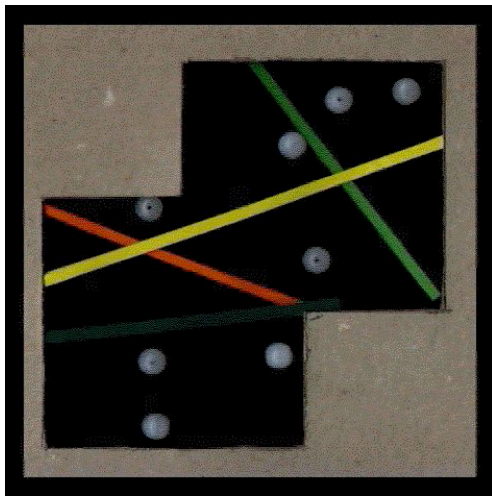
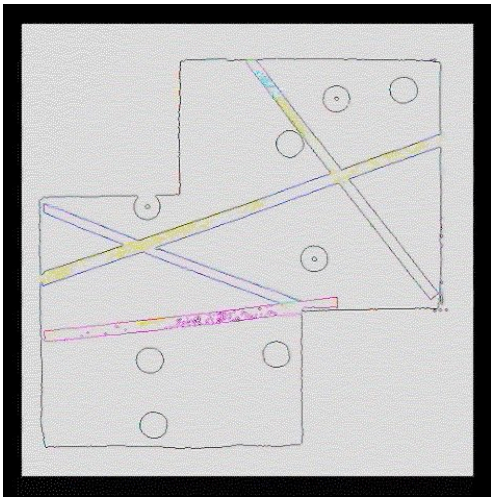
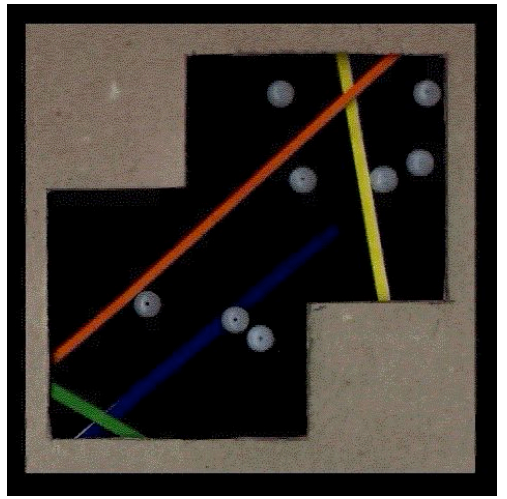
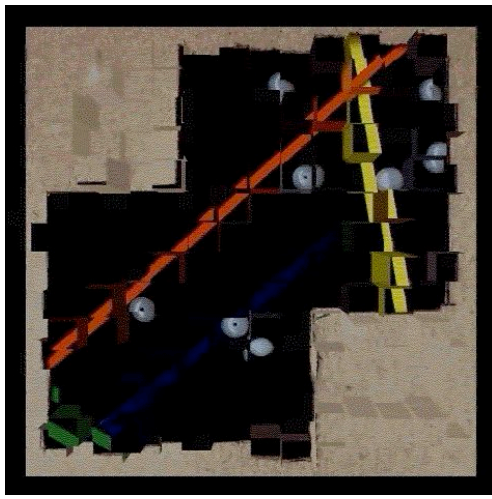
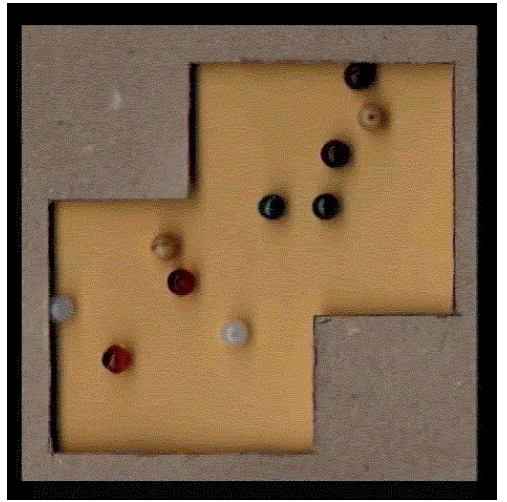
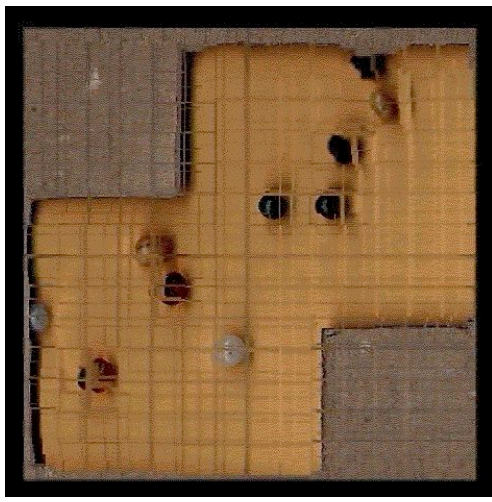
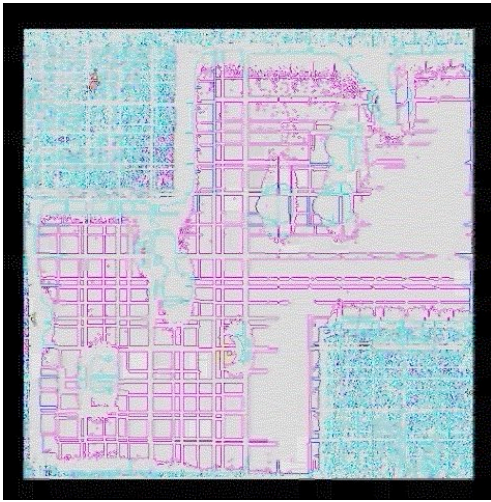
The overall effect is one of an adventurous, somewhat theatrical plan with distinct undertones of science fiction and even psychedelia. This surrealistic feel is emphasised by the use of colour; the whole composition being submerged in a fluid 'purple haze'.

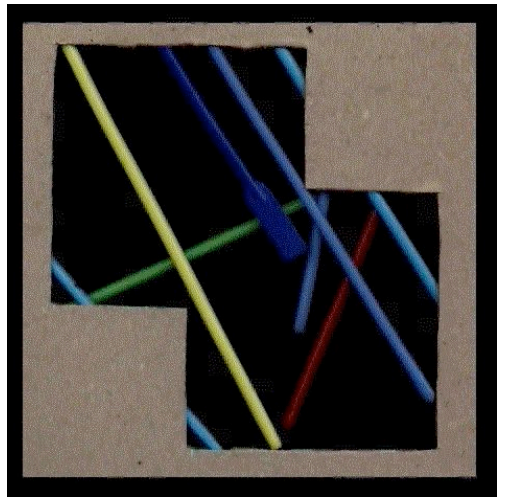
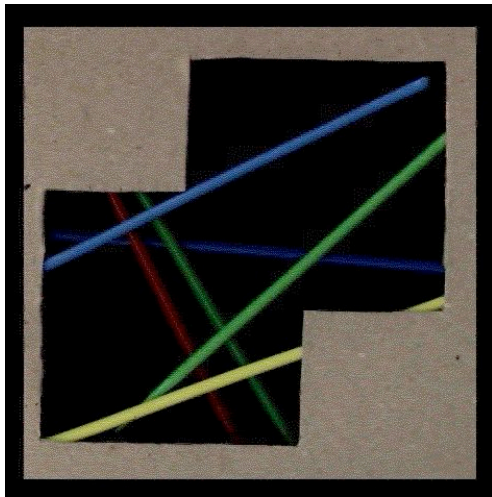
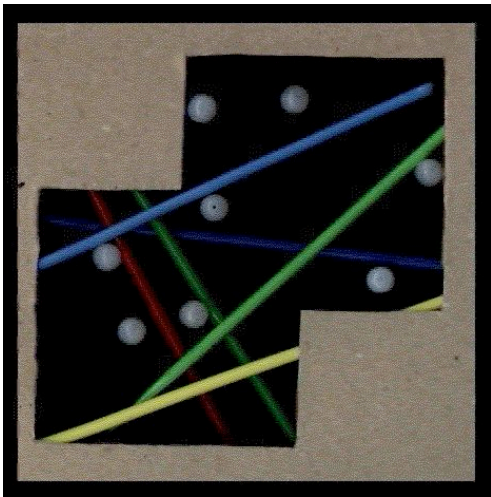
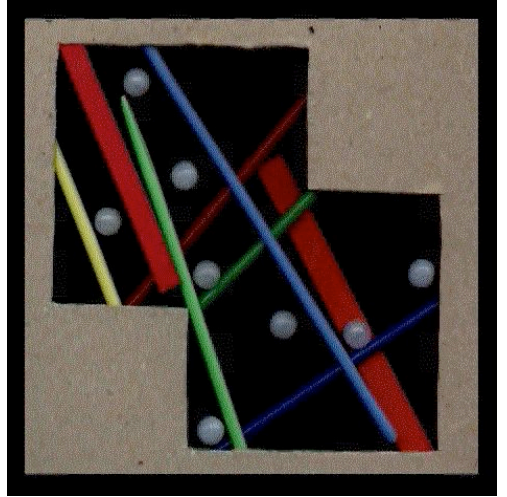
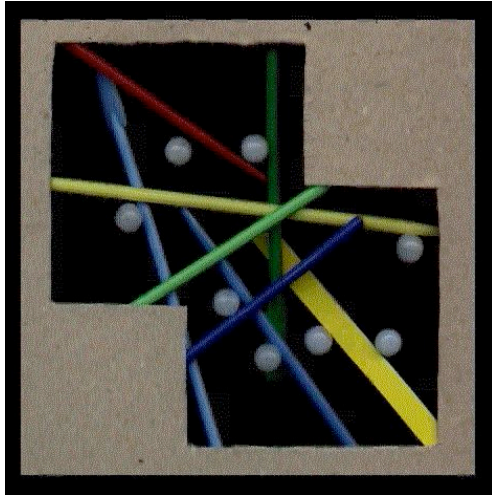
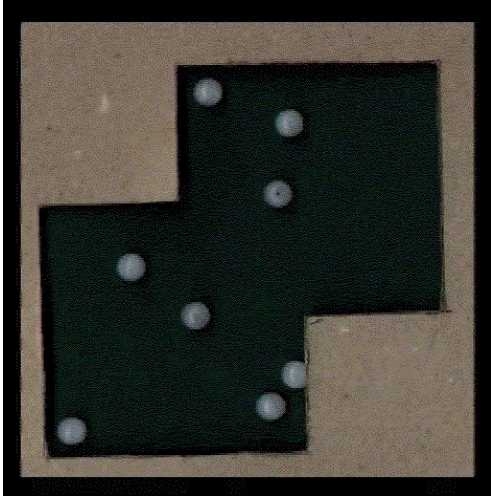
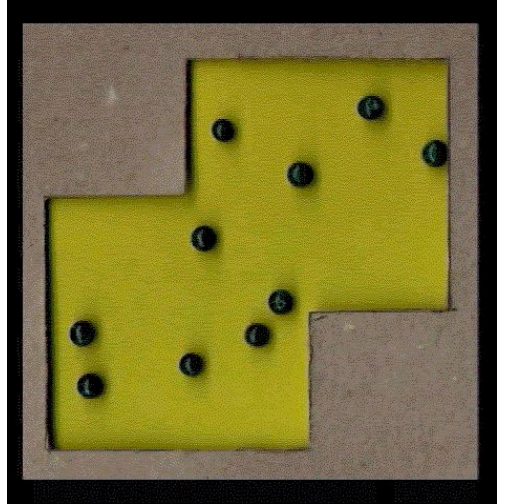
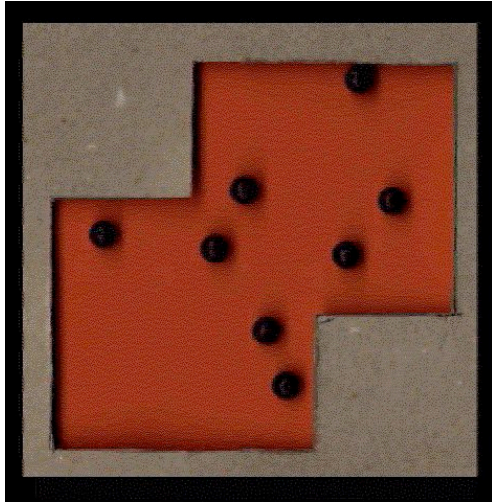
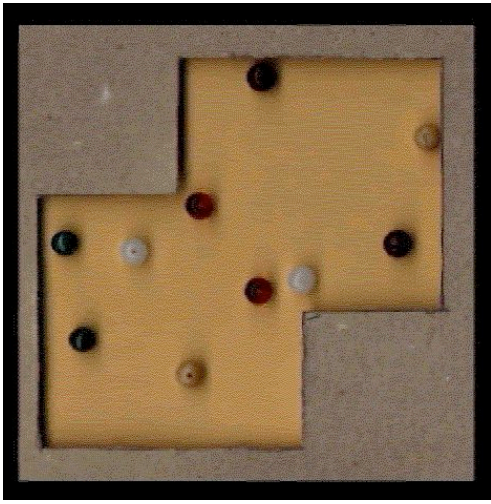
The impressive film sequence and high quality stills give a good insight into the concept and method of this project. Above all the inquisitive, experimental attitude and boundless enthusiasm of the Bialystok researchers/designers is portrayed in this sympathetically unfamiliar production.

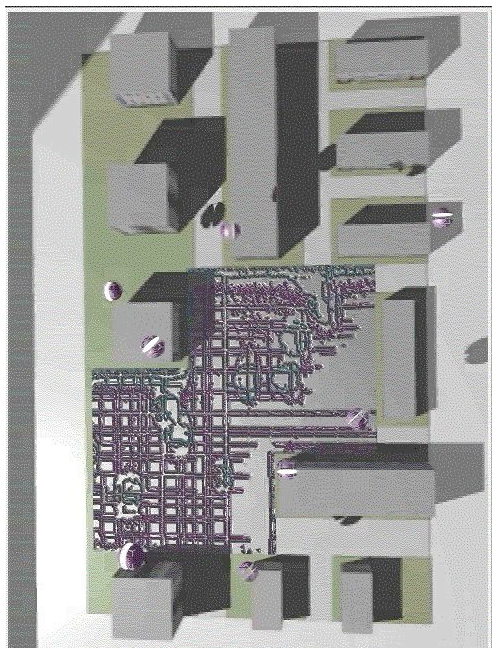
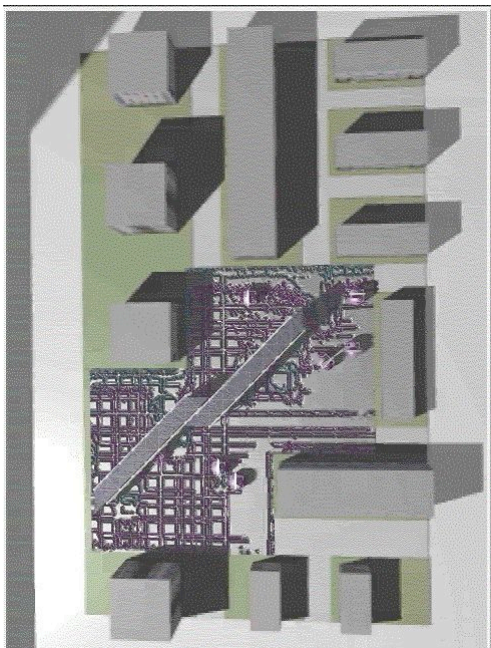
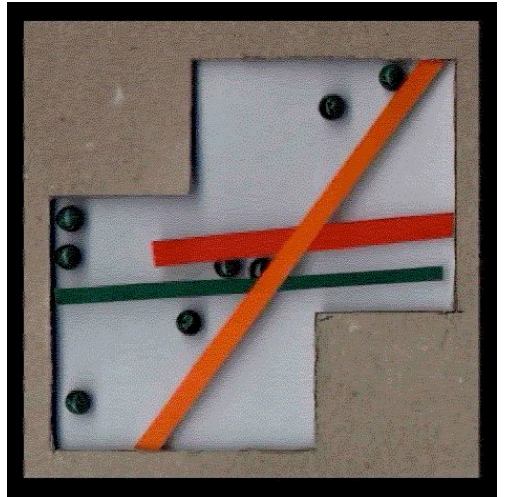
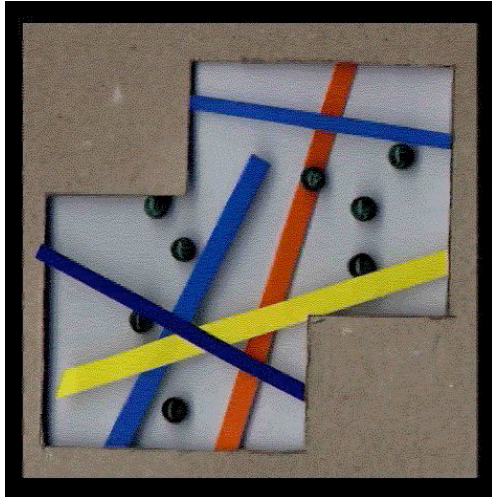
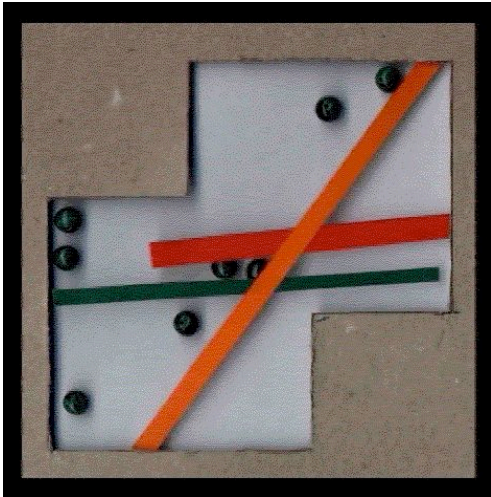
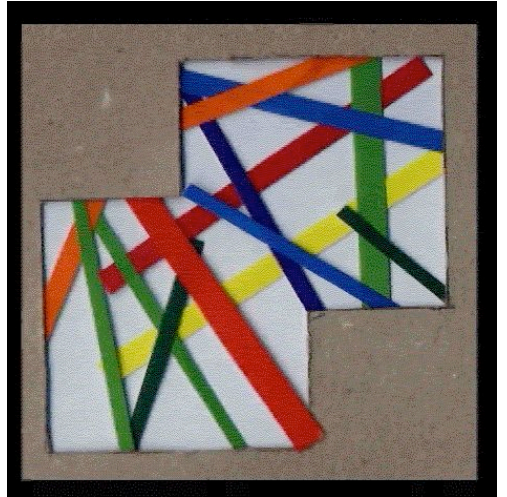
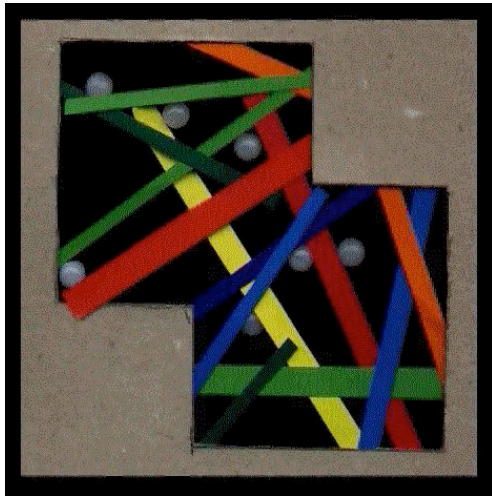
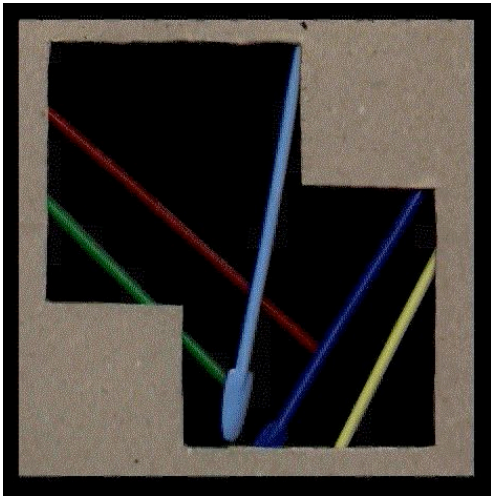












- Design :** Yeun Sook Lee (YUN2256@chollian.dacom.co.kr), Hyun Won Jung
- Visualisation :** Hyun Won Jung
- Institute :** Department Of Housing and Interior Design,  
Yonsei University, Seoul, Korea 120-749
- Used techniques :** Computer software: AutoCAD and 3D-Studio R4.  
Render type: phong-shaded, textures materials / facades,  
background.  
Light set-up: more omni-directional lights
- Questionnaire Remarks :** Yeun Sook Lee and Hyun Won Jung found the facade images on the building blocks a very efficient way to convey the neighbourhood characteristics, which is a fundamental information for the development of the design idea. This type of model is valid since the visual perception and appreciation depends on the contextual characteristics. Still they argue there are more details needed in the geometric form of the surrounding buildings (e.g. in the balconies and windows) because it could influence the design interventions in the process of developing the design concepts. There was no need to hide the texture map information (to make the facades more abstract) during the design process, because the design was meant to exist in a realistic context. In order to get a better insight, they rendered some camera animations during the design process. Pedestrian and bird-eye views were used almost simultaneously, using the different 'view-ports' of the CAAD program.

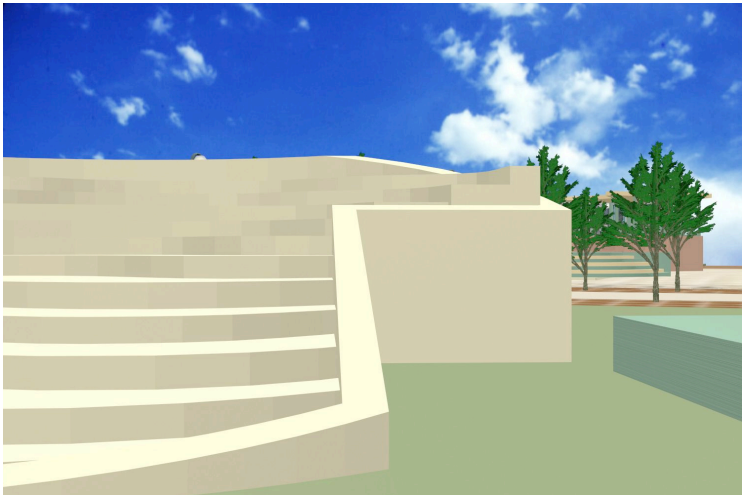
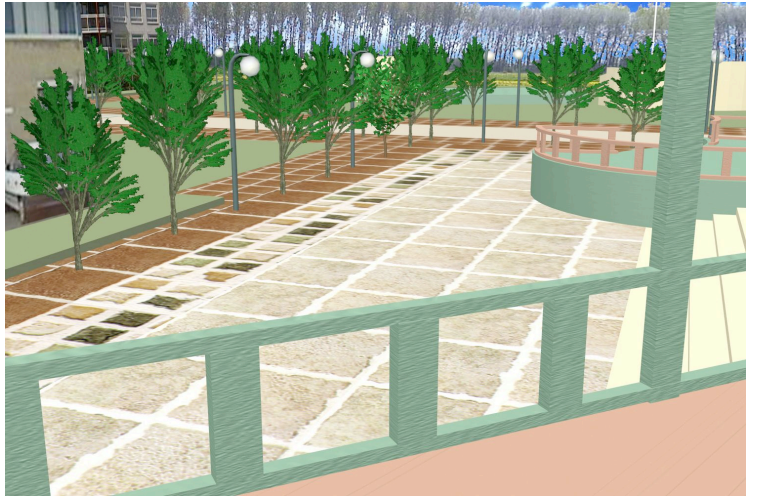
## Project

An adventurous - yet highly realistic - urban landscape design presentation.

The group from Seoul were stimulated by the computer model of the surroundings, which uses facade images applied via texture mapping techniques. This not only proved instrumental in conveying the characteristics of the neighbourhood (even giving a suggestion of climate and atmosphere) but also prompted a method of referring colours for the design to the context model. The group sampled some of the colours from the surrounding buildings and used them for the materials in their design. In this way they attempted to integrate the design elements into their surroundings.

Other techniques used in this presentation are the enhancement of colour and the adjustment of clouds in the background. In the professionally animated simulation of the design, this does mean that these background clouds do not move in sequence with the camera movement, creating a slightly disorienting effect. Nonetheless the film highlights the importance of dynamic visualisation, as - in comparison to the stills - the spatial set-up of this design is perceived much better in motion. Further technical aspects worth noting are the use of two types of 'digital trees' (one type is 'geometry based' and has realistic branches with green square facets as leaves, while the other type uses less computer geometry, employing two faces, texture mapped with two dimensional tree images).

The Korean contribution was conceived as a presentation of a varied new urban landscape design to residents from the area. This effective presentation could certainly be expected to lead to enthusiasm amongst such inhabitant groups.





**Design :** Tom Provoost, Johan Verleye and Johan Verbeke (wenkarch@innet.be)

**Visualisation :** Tom Provoost

**Institute :** Institute for Higher Education in the Sciences and the arts,  
Department of Architecture Sint-Lucas, campus Brussels,  
Paleizenstraat 65-67, B-1030 Brussels, Belgium. Tel +32 2 242 0000  
Fax +32 2 245 1404 or <http://www.club.innet.be/~pub00730/>

**Used techniques :** Computer software: 3D-Studio R3/R4 and STAR ARCHI.  
Render type: phong-shaded  
Light set-up: one spotlight

**Questionnaire Remarks :** This group mentioned a problem with the scale of the model, which was sent digitally to their institute. It is correct, the units of the scale were missed up while they were converted from AutoCAD to 3D-Studio MAX, and good scale was not brought back into the model. A good opportunity to check if the workshop participants reacted in their design via their natural sense for scale, based on the height of the buildings and the texture maps, or if they relied on the units and numbers in the CAD model.  
This group (like most participants) found the use of the context model with texture mappings quite good ('quick and easy for a nice effect') although the textures are 'not always needed or necessary'. Additional questions mentioned for such an EAEA workshop are: What about the use of 'pen and paper - techniques' during the design... Who did *not* use pen and paper ? What about the initial phases of the design process? How much time did people spend on their design and how long did they work behind the computer or endoscope?

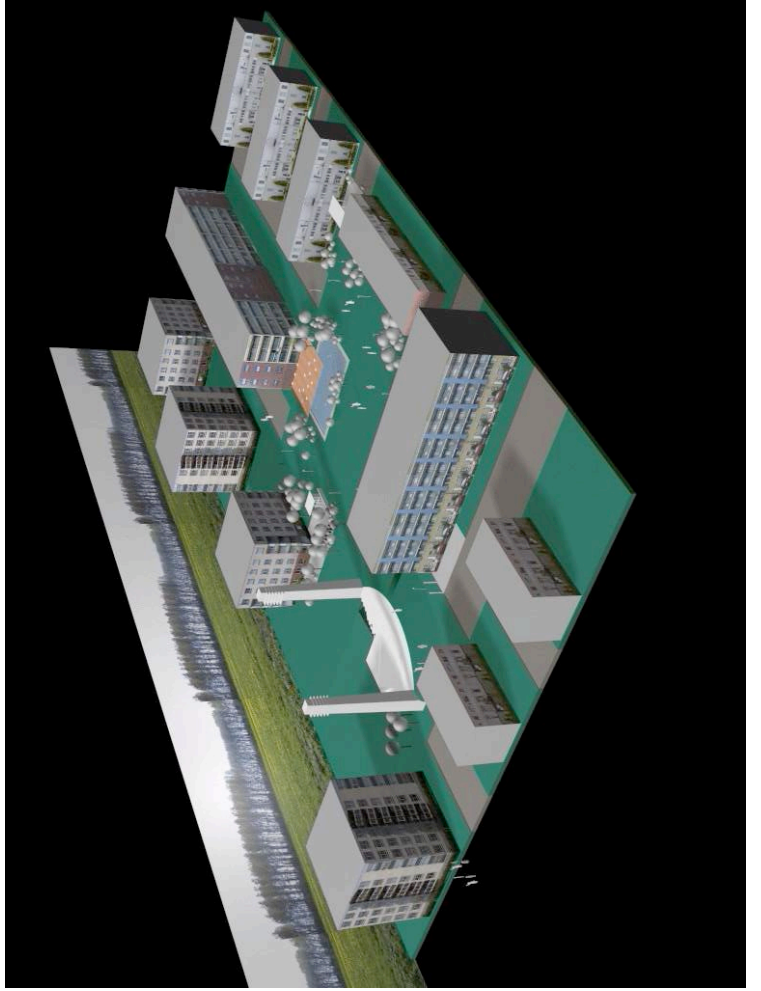
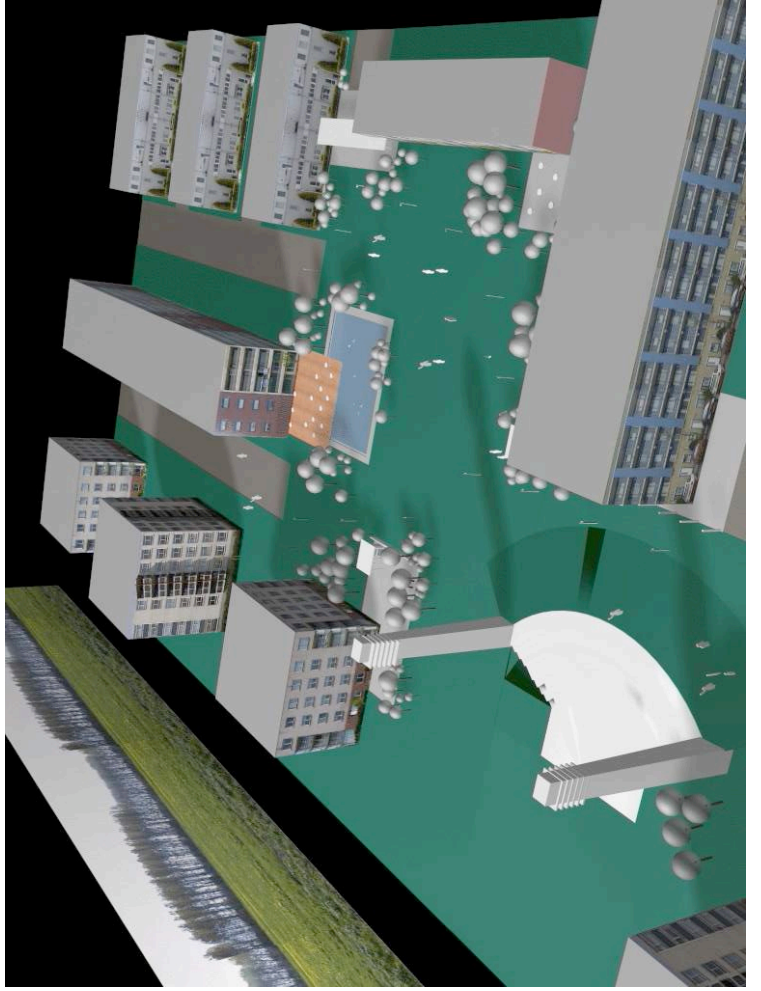
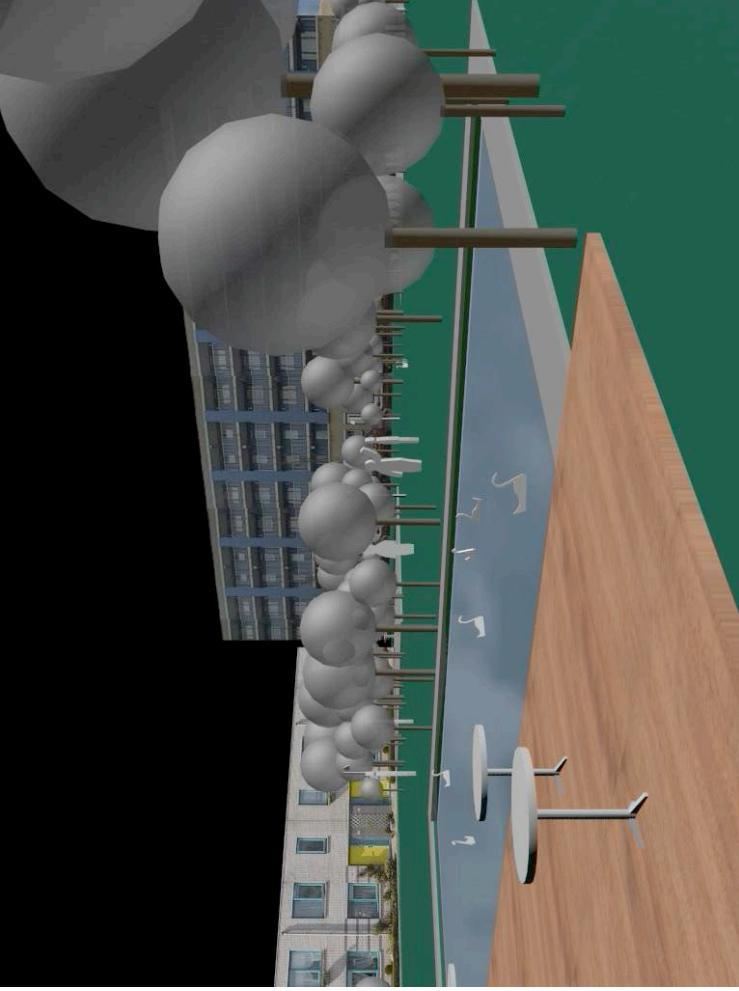
## Project

An interesting 'experimental' use of computer assisted - idea phase - design visualisation. The Sint-Lucas group are professionally interested in possible ways of implementing digital media in the 'upstream' (i.e. early, conceptual) phases of design. They used the workshop task as a vehicle for exploring the potentials of computer media in such stages of design. As such the material presented at the workshop sessions is not intended to be considered as a rounded off final product, but rather as a collection of images from a work 'in progress'.

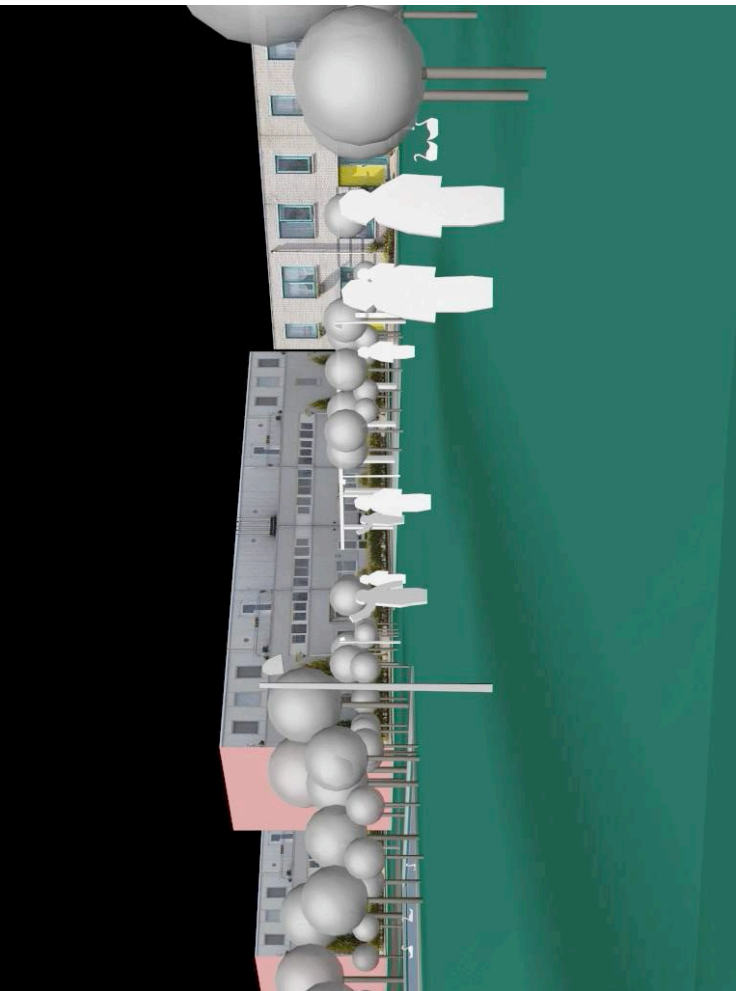
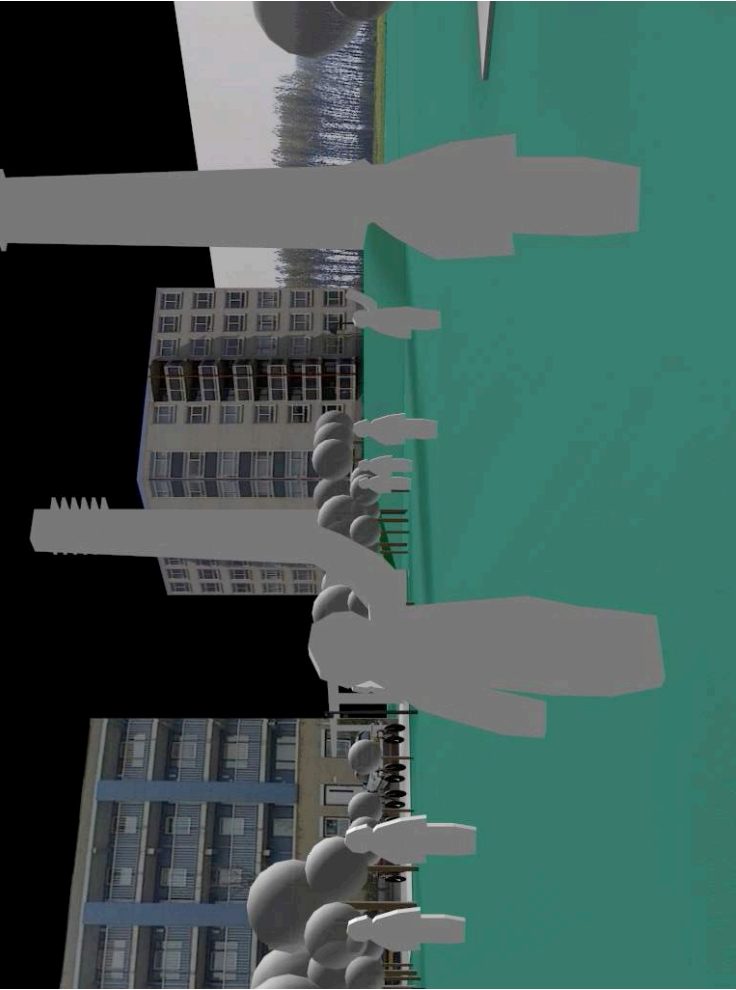
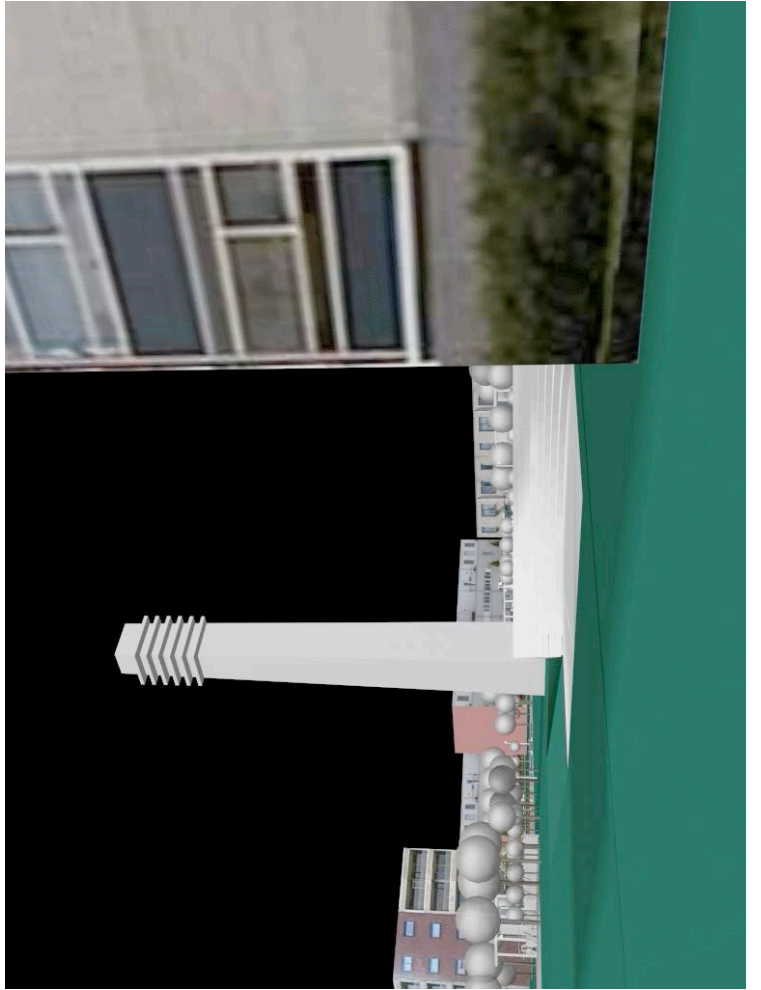
The work presented consisted of intermediate results from two phases: the translation of the very first reactions to the task and a second step where a process of selection and 'sharpening' of the initial ideas is made visible.

The Belgian group found that the resemblance with a typical Dutch Townscape in the model convincing. In fact this was exactly what they felt was wrong, finding the set-up too strictly planned. In their response they tried to upset this excessive 'orderliness'.

The plan basically consists of two parts: a terrace with water (on the side of the houses) and a 'theatre' with two monumental towers functioning as landmarks (more or less at the point where the road crosses the site, towards the open landscape). The road in the initial set-up had been erased, the whole underground of the area being replaced with a carpet of (very) green grass. The hard colours of the different design elements and the black sky emphasise the conceptual quality of the design imagery, but mean that the images are as yet somewhat less effective in communicating the potential qualities of the plan to others...







**Design & Visualisation:** Michael Matalasov, E. Matalasov, N. Kolenteyeva, Dmitri Berdinsky (bvl@icp.ac.ru or pager@vessotel.com first line of email message must be: vl#41799)

**Institute :** MARCHI, Moscow Architectural Institute (State Academy), Lab of Video Systems, Prof. Michael Matalasov, 11 Rozdestvenka str. 103754 Moscow K-31, Russia.

**Used techniques :** Computer software: AutoCAD and 3D-Studio R4. Render type: 'metal'-shaded, shadows, textures materials / facades, atmosphere (fog), gradient background. Light set-up: more omni-directional lights.

**Questionnaire Remarks :** See the description of the same group's endoscopy application.

### **Project**

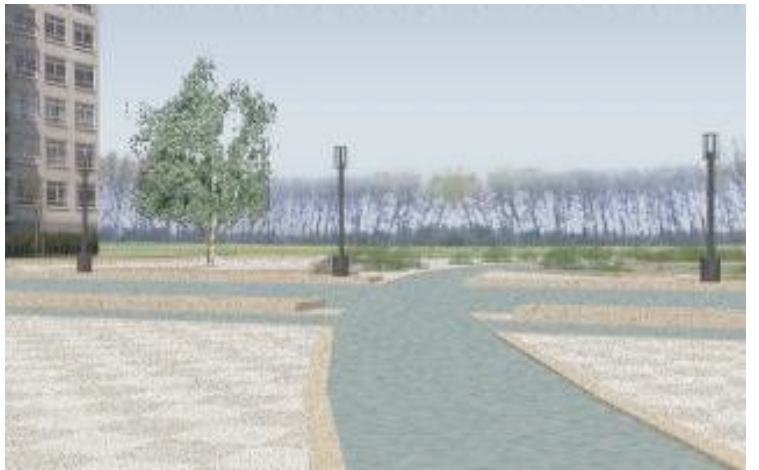
A professional, alternative presentation of the design prepared by the group from the Moscow Architectural Institute.

The basic plan, worked out in the form of a scale model, makes use of a series of curved paths through an exuberant, cultivated park landscape (see also the Moscow entry in the Optical Endoscopy category).

It can be noted that, although the design qualities of the proposal, used in both presentations, are of course fundamentally the same, the visual effects of both techniques are quite different. Where the optical presentation comes across as slightly romantic, almost cosy (probably because of the 'tactility' of the model used and the strategic use of 'people') the computer model exudes a more designerly, 'precise' kind of atmosphere. This may partly be due to the absence of human figures, as compared to the optical views from the scale model.

A notable aspect of this presentation is the surprising way in which trees and bushes have been created by mapping textures onto curved geometric shapes.

The subtle use of colour, particularly for the blue of the sky, contributes to the overall impression of a thoroughly skilful project presentation.



## Some general remarks concerning the Workshop Questionnaire

We first would like to thank the workshop participants for filling in the attached questionnaire. The given answers provide useful information about the way context models for architectural and urban design tasks could improve and give insight into how these kind of models influence design. Some general opinions and answers from the questionnaire are described here. Other, more specific, answers and remarks have been included in the project file per participant. Although this was a limited group of participants (with 11 filled-in questionnaire forms), we would like to draw some cautious conclusions.

In general the texture mapped models were received positively. This can also be seen in the various designs, which attempt to fit in and react to the surroundings. During certain decisive moments in the design process, some participants would have preferred a less detailed model, with only the abstract forms of the building blocks (without facade textures) in order to focus on the matter of the form of masses and proportion of spaces. The facade textures give a lot of information even though the projection is totally flat. More 3D geometric details could be provided in the balconies and the gardens, because these elements are most distorted when projected on a flat facade 'face'.

The question about which view, 'eye level view' or 'birds-eye view' is most appropriate for visual checking during 11 different design tasks, gave a lot of insight and a confirmation about the use of endoscopy and certain graphic user interfaces of computers. Most 'primary urban design decisions' like the 'placement of masses' and 'finding an appropriate urban scale' are done in birds-eye view. The more detailed decisions (visual checks) and decisions about height are made in eye-level view (e.g., details on the ground, choice of texture and material, light adjustments, camera placements, finding the appropriate human scale and proportions of spaces).

The comparison, after taking the average of the answers in all questionnaires and for all design tasks, shows some preference of the use of eye level views (60%) over use of 'birds-eye views' (40%). Remarkable was the consistency of this outcome among 8 participants (all between 54 and 64% for eye level use). Only two participants seem truly dedicated to perspective eye level views with their score of only 25 and 10% for the use of birds eye view.

Very important, though, is the simultaneous combination of both views. In most endoscopy laboratories this combination is almost natural, as the designer is standing next to the scale model and looking through the endoscope pipe or looking at a video monitor. When the views are separated through enhanced technology (such as happens when electronic camera navigation tools are introduced or in most 'full immersion' Virtual Reality applications) the need emerges for the insertion of a second view-frame in which an overview is provided. In a video or a previously rendered computer animation of a route through a model, the same need for an overview can occur. If a small overview image is not offered, one can easily get disorientated.

During the first and second EAEA conference, Petri Siitonen came up with an interesting comparison between endoscopic- and computer visualisation techniques. The computer was winning terrain, but endoscopy 'won'. Again we can say much in favour of computer visualisation and simulation technology, and during this third conference Arpad Pfeilsticker proposed to rename the EAEA as Architectural Simulation Association (in order to clearly include non-European participants and the use of computers).

Computers may be the future, but still these questionnaires of the workshop brought up 'dynamic visualisation' as an aspect in which endoscopy seems to offer a much more 'natural' interface than most computer programs do. All optical Endoscopists emphasised the use of a moving camera in order to find out certain aspects of the model, while only one of the computer users mentioned the use of rendered camera animation during the design process.

When using certain 'virtual reality' programs, 'dynamic visualisation' is possible using ordinary desktop computers. Moreover, processor speed is still accelerating and render algorithms have become more efficient. Nevertheless it seems important to learn from endoscopy how a graphic user interface can be designed in order to combine dynamic eye level views with dynamic birds eye views in computer applications. Only when confronted with the reality of scale models and the material world, can we know what concepts like 'real time', 'intuitive', 'stereoscopy' and 'interaction'

might mean, and that is still different from computational simulation of these aspects.

Finally we can mention the almost unanimous use of sketches and small tests before the real modelling work started. This is shown clearly in the video of Michael Matalasov and in the digital animation of the group from Bialystok.

## Workshop Presentations and Discussion

The workshop projects were presented on the 28<sup>th</sup> of August, during an integral afternoon session, chaired by Jack Breen in the Faculty of Architecture's visualisation laboratory. Prior to these presentations two senior members of the EAEA, Antero Markelin from Stuttgart and Wolfgang Thomas from Essen - both pioneers of Endoscopy - were asked to follow the sessions critically and report their findings during the workshop discussion after the presentations.

During the first part of the meeting, all contributions were presented separately, with a brief round for questions and remarks per project. The presentations were made using a broad selection of media, amongst others using slides, video productions and computer animations. In addition, some of the models (from the Tokyo and Vienna groups) were viewed using the dynamic, optical endoscope of the Delft faculty. The dynamic visualisations have been collected together on a special videotape featuring the conference presentations. During the break between the two parts of the project presentations, the facilities were viewed and there was room for informal discussion.

After all the projects had been presented, the meeting convened for a group discussion.

**Antero Markelin** kicked off the review. After the remarks made fresh after the project representations, an attempt should be made to "see the whole" and draw conclusions. Markelin stressed that he did not see his role as one of a jury member. The workshop was not a design competition, the primary interest is that of Endoscopy, the results should be considered under this aspect. Not too much emphasis should be placed on technical limitations ("we are all familiar with the 'earthquakes', the kind of problems anyone working with Endoscopy knows, and also the imperfection of models with roads going up and so on, this is secondary"). What was most interesting was way the plans (ranging from relatively simple explorations to brave, complex undertakings) were shown, given the scheme for movement specified beforehand. In the presentations nearly no-one ("only Matalasov?") followed this path. This shows that "ideas need their own roads - to show them". "We have seen many interesting and fascinating works where the idea and the technique fit together - in very different ways!". Some plans were realistic (and could be built tomorrow) while some were less concerned with this aspect. From the presentations one can learn about the ideas behind the projects. In the design process the ideas come first, then comes the 'moviemaker' to awaken the audience's interest. Markelin confessed that he had previously been sceptical about the workshop, but today had seen 'good Endoscopy': evidence of "a direction we should work on"...

**Wolfgang Thomas** confessed that he was enthusiastic ("begeistert") about the workshop. Even the way in which all the presentations had fallen into place as in a 'gesamtkunstwerk' had contributed to his excitement. The solutions that had been shown were very, very diverse. The 'focus' had nearly always been different. There were examples which had concentrated on finding the 'good solution', where the presentation was less important, and there were those where the presentation itself had been considered the task, the problem. As far as the discussion - what is better CAD or Endoscopy? - is concerned, Thomas felt optimistic by the way both techniques were being used. One type of technique or the other doesn't matter; it is a matter of producing the right image: the level of validity in relation to the design being presented. Possibly there are situations where using Cad is better. Cad makes it easier to do things which are normally not possible and Cad is tempting, even seductive ("verführerisch"). A number of participants have sought solutions beyond architecture - looking further...

Another good aspect of the workshop, according to Thomas, was that next to the more 'scientific' paper presentations, it offered an opportunity to bring the conference participants, from very different cultural backgrounds, together on the level of Imaging ("Bilder zu machen"), getting to know each other and sharing in each other's enthusiasm: a miniature 'global village'...

The Russian delegates continued the discussion on the topic of digital and optical means. It was confirmed that both offer good opportunities. Concerning the level of detailing, Markelin remarked that this depends entirely on what one wants to bring across, if you want to show the effect of a window, you will have to make the window. Concerning the texture-mapped context model, the Dresden group had been impressed how well this worked: "a good and cheap technique". Amin Amin, from the Delft Building Technology group stated that his group had been challenged by the model to find texture maps that would fit in. The general impression was that the context model proved to be sufficient for this task (although some would like to see more detail in balconies etc.), but that the new design propositions added to this background could be considerably more detailed. Stimulated by the Stuttgart night-time contribution, a discussion arose about other kinds of conditions which might be simulated, such as night and day but also summer and winter. The 'blue-ness' of a sky (and the use of clouds and/or fog) was a recurring theme (is it always sunny in an endoscope?). This aspect, in combination with lighting is still a critical aspect, particularly in Cad presentations.

Architects seldom think in terms of lighting. Learning from the lighting experience of (old) movies could be

very useful. At this point it could be that lighting in an Endoscope model still has the edge over the computer model...

There is a need to differentiate between realism and simulation. The acceptance of a simulation is often greater if the audience is aware of the fact that it is only a limited simulation and that there is a model involved. Ohno remarked that all of us choose which part of the information we simulate. There is always a reduction, even though we may include non-visual information, such as acoustic input. Also, real video sequences can contribute to the involvement of the viewer. There are developments towards new applications, such as the possibility of creating stereoscopic pictures and digital instruments are developing fast. However, simulations need not always aim for a 'high' level of realism. As Patricia Alkhoven has noted it can even be advantageous to consciously choose a level abstraction at a certain point. Despite the natural ambition towards perfection, we have to be aware that we are after all simulating a design (which is not yet 'real') and be honest about this... The reason we come together at such meetings is to discuss and compare experiences and perhaps even 'borrow' from each other in order to use the instruments at our disposal creatively... Markelin closes the discussion, thanking all those responsible for organising the event.

## Conclusions

The conference offered a large variety of themes which may be of importance in furthering applications for environmental simulation - and particularly the development of Endoscopy.

As a part of the overall arrangement, the workshop Imaging Imagination attempted to bring experts from different institutes together within the framework of a creative exercise, which might stimulate comparison of different results and lead to an exchange of ideas.

In this perspective it seems justified to consider the workshop a successful experience. Although the number of participants was limited, the task led to contributions of impressive quality (both on the level of the design solutions as on the level of technical implementation and even innovation) and considerable diversity.

Although it is impossible to generalise - and at the risk of simplification - one might nonetheless be able to recognise the following 'streams' running through the collective undertaking:

- a 'scenographic' approach (emphasising the changing visual qualities of the design as perceived from different viewpoints and experienced through motion);
- an 'atmospheric approach' (making conscious use of selected stimuli such as differences in lighting conditions and the use of background sounds to convey a sense of presence);
- an 'experimental approach' (using the instrumentation in an inquisitive search towards finding the 'correct' form for the design, or in an attempt to shift the existing boundaries of design media).

These categories are naturally not 'inclusive' in the sense that one of these will comprehensively sum up a specific project. Indeed, it is probable that a number of workshop participants will recognise aspects of their design and simulation process not only in one, but in two, or perhaps even all three of these rudimentary categories.

Essentially, what Endoscopy does is create images from a design model, from an imaginary eyelevel. This is an effective way of presenting an - already finished - design to others involved. However it also has the potential of being used creatively in the design process. This workshop was intended to explore the uses of Endoscopy as a design instrument. The method was to offer a context model in the hope that the participants would continue working on their designs in the model, using perspective views. There appears to be considerable evidence that those who contributed to the workshop used the model in such a way. This obviously does not mean exclusive use of the eye level option in design, but a combination of working in an overview mode (mostly used in primary design decisionmaking) and also in perspective views (mostly for checking and refining the concept). Although the workshop participants were of course a select group, familiar with the opportunities of Endoscopy, it seems justified to assume that such an approach might prove to be of use in other design tasks on the level of the composition of urban ensembles.

The chosen design context was fictitious, even though it had been 'assembled' using elements from real, 'typically Dutch' urban landscapes (which may have led to a feeling of déjà-vu amongst some participants during the final day's group excursion). The method of 'sampling' facade textures and applying these to simple building blocks as a kind of 'urban wallpaper' has proved effective within the context of this limited workshop, although some participants would have liked to have seen some more articulation. It was certainly an effective way of getting the models to institutes around the world and appears to have activated the imagination in a number of culturally diverse groups of design visualisation experts...

The decision to include both optical and digital endoscope techniques has worked out well. Roughly the same number of proposals was received using these two types of techniques. Both of these approaches are worthwhile propositions, it is perhaps not a question of 'or' but one of 'and'. An optical approach may be better

in some cases and a computer approach in others. Much depends on the personal preferences of the designer. Working with the computer is still very different from working with a scale model. The use of different tools can possibly stimulate different design solutions and as yet it still appears to lead to different kinds of images and use of 'camera' motion. Computers are steadily developing and gradually becoming more 'sensitive', both in their user interface and in their visual expression potentials. At the same time 'traditional' techniques are relying more and more on computation, and probably shall continue to do so.

The general impression at the conference has been that optical Endoscopy is very much 'alive and kicking'. It has once again become clear during this meeting, that international Endoscopy groups are not conservative in their approach, but look towards new and innovative applications. New opportunities may lie ahead for the combined use of digital and optical techniques!

The Media group have thoroughly enjoyed preparing and documenting the conference and the Imaging Imagination adventure and wish to thank all those who have put their time into preparing images which will hopefully continue to stimulate the imagination!



