

# Copying, Cutting and Pasting Social Spheres:

## Computer Designers' Participation in Architectural Projects

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In architecture, projects are developed through a series of graphic productions. This space of representation can be accessed using visual effects. Among the documents (plans, sections, details, etc.) used to give shape to a building, so-called 'perspective drawings' play a decisive role, as they make a whole world come alive and, at the same time, act to convince a multiple audience of this world's ability to function. Created using computer-aided design (CAD), perspective drawings aim to 'render' space by projecting potential uses, light, and intangible things such as atmosphere. These drawings provide architects and designers with an opportunity to redefine the nature of beings and act on the peculiarity of their relationships, and constitute an interesting support to consider the projection of new cosmologies, anticipating the cohabitation of such diverse things as human beings, buildings, roads, trees, skies, cars and their respective ways of existing. This paper is based on ethnographic fieldwork in a Japanese architect's office and a computer designer's studio, and focuses on the architectural setting of the Japanese World Fair, Aichi 2005.

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In their nascent incompleteness, indeed in a form still more dream or wraithlike than actual, [digital] technologies are ripe, as it were, for various imaginary schemas, projected futures, dreams, hopes and fears. (Grosz, 1997: 109)

When he was envisioning the construction of the imaginary and somewhat magical city of Sforzinda,

the Florentine architect Filarete, in his *Trattato di architettura* ("Treatise on Architecture", 1465), asked the prince to whom the city was dedicated, "Do you want me to describe what our city would be like?" And the prince answered, "Draw it first, and then explain it to me, part by part, with the drawing". That a drawing might provide adequate means to prefigure architectural ideals of urban and governmental organisation

was merely one of many innovations promoted by Filarete. In giving figuration a central place in the argument, the Italian architect inaugurated a new relationship between architectural creation and production (Choay, 1996). The history of architecture, and especially of its technical inscription devices (see for instance Carpo, 2001; Choay, 1996; Perez-Gomez, 1992; Robbins, 1994), shows that, far from being “a universal and transhistorical attribute of architectural practice”, the act of drawing is a “relatively recent and historically situated” practice (Robbins, 1994: 10) which progressively transformed the architect from craftperson or builder to artist. This historical statement is more than confirmed by contemporary observations. As soon as one enters an architect’s office, images are obvious, everywhere, and invasive to the point that “Like Magritte’s pipe, the representation is almost more definitive than the thing itself” (Rattenbury, 2002: xxi). Far from being confined to a mere artistic role, architectural representations have been described as being part of the design process itself. As tools to assist conception, images enable “the spatialization of ideas, principles and concepts” (Durand, 2003: 11). Images also serve as communication tools to support architectural invention (Durand 2003; Pousin 1991). Here I shall argue that architectural representations can also be seen as tools to experiment with and express new social configurations.

The place of images and figurations in science or engineering has been richly documented and analysed (see Bucciarelli, 1994; Galison, 1997; Latour and Weibel, 2002; Lynch and Woolgar, 1990; Vinck, 2003). This literature shows that images play a critical role in the construction of the world itself.

As Peter Galison puts it, for example, “Pictures are not just scaffolding, they are the gleaming edifices of truth itself that we hope to reveal. So goes the brief for the scientific image: pictures are pedagogically, epistemically, and metaphysically inalienable from the goal of science itself.” (Galison, 2002: 300). *Revealing* a world by showing it and *demonstrating* its existence are but two dimensions of the same thing. In architecture, among the “universes of ideation” (Perez-Gomez, 2002: 6) such as plans, sections, details and models used to give shape to a building in contemporary architecture, the so-called ‘perspective drawings’ or *renderings* play a decisive role in that they make a whole world come alive and, at the same time, act to convince a multiple audience (in particular the clients) of its ability to function. Created using computer-aided design (CAD) systems, perspective drawings are aimed at ‘rendering’ space, to make it alive by projecting potential uses, light and intangible things such as atmosphere. While looking at the actual operations which constitute this representation technique, I would like to show how these virtual montages feature as cosmologies in the making. Here, ‘world’ or ‘cosmology’ are not simply manners of speaking. They must be seen as common spaces to design, for which the cohabitation of such diverse things as human beings, buildings, roads, trees, skies, cars, and their respective ways of existing must be anticipated. This is a serious matter: Architects, while designing, digitalizing, copying, and cutting and pasting images, manipulate social spheres and give birth to new ones<sup>1</sup> by testing and submitting new social configurations.

It seems appropriate to focus on perspective drawings, considering

the nature of the project I propose to introduce in this paper—strictly speaking, a utopia. It is about a World Fair, 2005, which was held in the suburbs of a Japanese megalopolis. The images produced by architects and computer designers gave shape to this utopia, showing worlds in formation and new cosmologies. Just as Filarete questioned the prince, architects and computer designers, while producing images, asked “Would you like to have an overview of what the Expo – and the world to come – might look like?” Furthermore, in composing drawings, architects addressed issues that can be formulated as follows: What do we need for the world we project? What do we put in it? Which relationships do we rely on? To observe the making of these drawings is basically to witness new universes being fabricated, corrected, coloured, articulated or dislocated, by simple clicks on a keyboard. In the case of Expo 2005, how did the architects in charge of the plans create a new assembly (Latour, 2005)? And which assembly did they choose to create? What and who did they put into the images? What was the quality of the space they designed? What kinds of cosmologies were they *versioning*?

In order to approach these questions, I will combine multiple perspectives. Uncomfortable as it is, this position should allow me to examine elements very different in nature, expressing themselves on very different scales: The making of particular architectural images and the description of some of their specific properties; the content of images and their submission to and reception by the public; the history of architecture and digital technologies; and world fairs and modern/non-modern Japan. I believe that going back and forth between these different dimensions is an effective way

to understand how *cosmopolitics* are being shaped and how a common world is defined (Latour, 2005; Latour and Gagliardi, 2006).

### Mapping the future

World fairs are commonly known as regularly organised attempts to represent glorious futures by envisioning and exhibiting technological progress (see, for instance, Harvey, 1996; Heller, 1999; Rydell, 1993). The last fair to date in this rather long history was held in Japan in 2005. Like its immediate predecessors, Aichi 2005, the first of the twenty-first century, could not but show subtle variations on the rhetoric of progress and development, and propose to go ‘beyond’ that. After many discussions about the size of the site and how the structures built for the occasion would be used afterwards, for the second time in history<sup>2</sup> it was officially decided to hold a world fair in Japan; In December 2000, during a symbolic ceremony, Japan received the *International Bureau of Expositions* (BIE) flag from Germany. Five years later, in 2005, the Expo, entitled “Beyond Development: Rediscovering Nature’s Wisdom”, was eventually inaugurated for six months, in the suburb of Nagoya. In the meantime, however, the Expo project had been running into problems and restrictions – controversy among local people, political u-turns and scandals, economic crisis, and scientific inquiries that somewhat modified its form and content (Houdart, 2002; 2006a). These are a few of the problems I witnessed between the winter of 1999 (when I got to know about the Expo Project by taking part in an interview of Bruno Latour by a Japanese anthropologist, eager to make the Expo 2005 the first ‘non-modern’ one in history) and the spring of 2005, with

the inauguration of the Expo. Over six years, I went to Japan twice for long-term studies (a year in 2000, then 8 months in 2003) and, when not on intensive fieldwork, I went once a year for shorter stays. The first long stay was mainly devoted to meeting organisers from different committees, and planners who were responsible for conceptualising the theme of the Expo. Much of the discourse was redundant, however, and convinced me to look for more concrete aspects, so I came back to Japan to do fieldwork in two of the main architectural and design studios involved in shaping the Expo site. There, I attended meetings and work sessions related to the Expo project and observed the daily making and unmaking of drafts, models and drawings. Later on in this paper I will scrutinise two main architectural scenarios, proposed by the studios where I carried out my ethnographical research.

The basic proposal of the Expo 2005 was to take advantage of the geographical conditions of a forest in order to invite the world to develop new relationships with nature for the century to come. The organisers, helped by a team of Japanese thinkers and designers, tried to anticipate a new society, based on the idea of *statin*—or, more precisely, of *restating*—the terms of a pact made with nature. Architects played a pre-eminent role in this process, and helped by various graphic tools, they gave forms to the basic idea by digitalizing pictures, building virtual structures and mapping textures.

In order to comprehend the way new worlds are given form, we shall first look at the techniques and basic principles needed to create them. As we shall see in this section, creating a new world is not a question of making a *tabula rasa* of preceding cosmologies, but is rather a

question of making small arrangements and compromises with the actual world. At one point or another in the design development stage, an architectural project takes the form of a *package*, an A3 size booklet made up of the various representation techniques or graphic steps – concepts' drawings, perspective drawings, ground plans, elevation or section plans, engineering details and so on. With it are models or samples of materials. Among these diverse types of figurations, perspective drawings, or *renderings*, constitute an important and delicate part of the architectural argumentation as they offer a *point of view* into the future building, orientate and direct the attention and 'subjectivise' the project. Defined as "drawings of solid objects on a two-dimensional surface done in such a way as to suggest their relative positions and size when viewed from a particular point" (Robbins, 1994: 23), their function is to *render* space explicitly, to render a building by virtually building it, then surrounding it by projecting potential uses, light, and intangible things such as an atmosphere. While plans, based on conventions and graphic symbols, can hardly communicate on their own and require some specific knowledge (Robbins: 125), perspective drawings appear as accessible materials, scenarios that do not need a translator. They offer a realistic image of the building, in situation, aimed at convincing people that the project *can* exist in the real world, and can take place among real and existent objects. As demonstration tools, they are based on specific visual devices, aimed at boosting imagination and producing special visual effects. It is no coincidence that the computer techniques used to produce such effects, created in the early 1990s, have been borrowed from the Hollywood

SFX industry. The images produced by these techniques are multi-layer images, blending photographic elements, computer graphics and visual elements taken from databases. They are, therefore, composite, hybrid images, that are not photography *per se* but seem to borrow some of its qualities and characteristics.

The making of these perspective drawings involves interesting operations such as ‘matching colours’, ‘mapping texture’ or ‘importing objects’. Transformation, combination or superimposition, alteration and also simulation, reproduction, enhancement and augmentation are but a few ways an architect can work on and experience these images. In order to understand the technical aspects of these operations, it is first necessary to look more closely at the making of perspective drawings.



### The architect at work

Kuma, the well-known Japanese architect, was chosen to work on the preliminary plans for Expo 2005 (Houdart, 2006a) on the basis of his developing ‘green-architecture’ and his previous involvement in post-modernism. This was the original reason for my first encounter with Kuma in 2001. Back in Japan two years later, I negotiated my daily presence with the architect in his studio for an eight-month term. Kuma himself reformulated my proposal of “following architects at work” to “following a project” – a reformulation which would circumscribe my presence in space and time, where and when something would ‘happen’ concerning this particular project. I therefore shadowed Teppei, a young architect, trying my best not to add an unnecessary and unmanageable presence to an already saturated place. I observed Teppei and Asako, the computer designer hired ‘to do renderings’, who worked together in the following way: “We start by building a model on computer, using AutoCad for example”. On his computer screen, the architect showed me one of the original models he built, exhibiting its interior and exterior structure (Figure 1).

This model is a set of bright lines that specify, in three dimensions, the space of the black screen. On this model, “each louver is an object” – more precisely, a computerised object. “Then you take a view” – meaning you select part of the computerised object with the mouse –, and you render it. And then you click a button: “Right now, it’s rendering. It takes some time...” The result Teppei gets is

**Figure 1.** The architect at work on his computer. (Photo: S. Houdart)

“like an illustration” and is “the best that AutoCad can do in terms of rendering”. Then, “you assign the texture, this would be wood, this would be stone, and you add the lighting; you are *rendering*. Rendering is the colour writing”. Rendering, then, consists of allocating “texture” (a colour, a density, a nature or a function) to computerised objects. The whole operation can be summarised as follows: First, you transform everything (pictures of things and also things themselves, scanned to be digitalized) into computerised objects, that is, to homogenise them, through *pixelisation*, by removing their peculiar qualities – to de-essentialise or de-ontologise them. Second, you allocate things with new substantiations, texture, colour, and density.

Allocating substances or deciding upon new identities for things, however, is not a simple matter of assigning “an integer value to a pixel in order to specify (according to some coding scheme) its tone or colour” (Mitchell, 1992: 6). It cannot be reduced to a mechanical operation. Originally, explains the architect, you have “a very general idea for colours”: Kuma wanted everything “not too dark, not too grey”. Having seen a first draft, Kuma asked for some modifications concerning colours here and there, “he wanted more nuances in the wood”, he “wanted contrast”. “In reality”, wooden materials would not necessarily be different “here” and “there”, “but it’s for the rendering”; rendering the same material differently “gives the effect” of wooden vertical walls as opposed to wooden horizontal louvers, for example. From a mess of documents and materials, Teppei drags out a sample of wooden louver (a *mock-up*) that has been “scanned”, its texture being “mapped” to get the feeling of it.

The young architect enters modifications by using the computerised material and by modulating the result, bit by bit, via the basic functions of Adobe Photoshop software: “Brightness/contrast”, “Colour balance”, and so on. Since the 1990s, architects and computer designers have benefited from an infinite number of colours in the digital palette (these palettes contain more than a million colours) and from the plasticity of this device which allows all kinds of transformations, but at the same time, they have to deal with the so-called “colour matching problem” – faced with the impossibility of naming each colour, they have to find ways to express “what kind of” red, green or grey is thought to be more appropriate,<sup>3</sup> using constant discussions, tests and confirmations, and successive approximations.

To consider the *effects* things give involves, therefore, a whole system to draw attention to them (see the historical argument developed by Crary, 2001; see also Grimaud et al., 2006 and Houdart, 2006b) as well as an effective communication system. At this point in the drawing process, the architect delegates the rendering to his colleague, Asako, the computer designer who “will do some magic”. The computer designer has several windows open on his screen, and so that I can understand the process, he starts by closing them, undoing the project by removing, one by one, the elements which made up the final image. He then repeats the same operations, starting from the beginning (that is, from the three-dimensional building’s plans given by the architect) and reintroducing elements one by one. These elements, colours and textures are fixed, in real time, through discussions with the architect, who stands next to him, with successive approximations:

“like that? And this part, like that?” Then Asako “frames the picture”, “puts people”, adds the lawn in front, adds trees and the blue of the sky... For this, the computer designer can pick elements from a file of pictures taken at the project site: he superimposes the composed image of the as yet inexistent building onto the image of the street in which the building will be, with people walking by or cars driving past. “This way, it sticks”, concludes the designer – meaning sticks to reality, enhancing the effect of the perspective drawing.

While it may be said that “architecture is driven by belief in the nature of the real and the physical [and is] absolutely rooted in the idea of ‘the thing itself’” (Rattenbury, 2002: xxi), yet if one observes it in practice, one sees that the supposedly peculiar relationship with reality comes second; in order to compose a perspective rendering, to make a new world come to alive, it is first necessary to add and arrange previously homogenised objects, and *then* putting the composition to the test of reality, in order to make it *believable*.

### The other nature of things

Let us now consider the nature of the beings involved in the process previously described and the way they are organised. In *Land*, the display design studio responsible for the iconic management of

the Expo project a few years after Kuma Kengo, Ikebe, a computer designer, is working at his desk. He is about to enter corrections into the perspective drawings which were discussed and scrawled in the last meeting. His boss and manager, Wakamatsu Hirofumi, pointed out some trees he found “strange”, and with his red pencil, he “realigned” them on the paper – indicating with a red line the position they should have on the next print-out. The way in which the trees had been situated in the previous version meant that they collided with the banners; both were still visible on the drawing, but would not have been “in reality”. Therefore, a proposal was made to realign either the trees or the banners. Nothing could be easier than updating the drawing – the trees had to be realigned – all Ikebe had to do was to “slide them” using the mouse. Everything remains possible in the drawing, regardless of the conflict between banners and trees in “reality”. A few days and a few rectifications later, however, during another meeting, the trees were still causing problems. “They are too high”, commented someone, suggesting that “maybe, it’s the perspective drawing itself”, yet something needed to be done. The problem, according to one of the designers, was that these trees existed “for real” and were higher than the ones which figure on the drawing. The designer showed me a set of pictures taken on-site,



Figure 2. Montage of trees *out there*. (Courtesy of Land)

with the “real trees” surrounding the lake adding “but if we render them higher on the drawing, the pavilions are no longer visible” (Figure 2).

The pavilions were a major part of the architectural contract, and had to be visible – even though, in order to show them, “real trees” had to be downsized on the drawing. The designer concluded: “So, you have to give the effect of the trees being smaller in order to keep the visual composition and make it work – to make the clients believe in it”. This episode illustrates the ambiguity involved in perspective drawings, as well as the risks in dealing with and composing several regimes of representation. A perspective drawing is not supposed to be convincing in its precision and respect for detail; the challenge is, on the contrary, to be false or unfaithful and *still* to transport the client away from his world into a new one; it

is subversive almost by definition. As a matter of fact, the above client’s request was not exactly to make the drawing “stick” to reality, as in the previous example, but to “do something” on the rendering itself to show that the newly designed world would “work” (Figure 3).

As his job is to ensure graphic cohesion between several areas of the same site, Ikebe works with files of images he downloaded from the Internet. The plans he receives from the architects working on the project contain captions stating the type of texture (wood, stone, and so on) they would like for each part of the building. Based on this synopsis, Ikebe “looks around for samples” and creates his own file to which he refers whenever alternatives are required. The catalogue he obtains in this way has no hierarchy or order of any kind, apart from the order of his virtual peregrinations, and

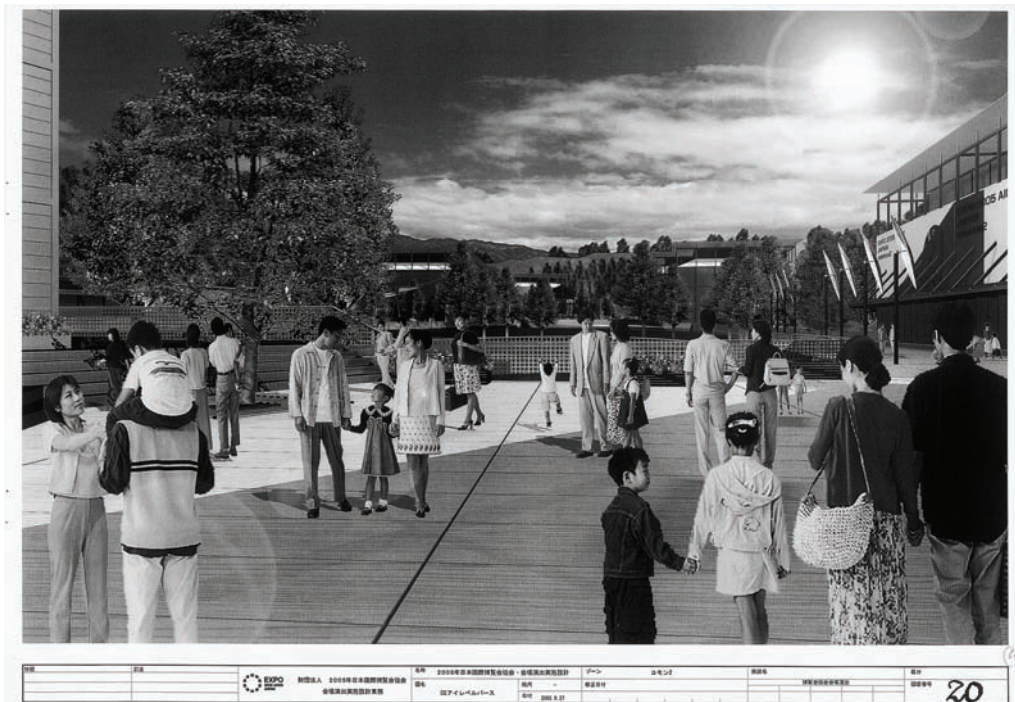


Figure 3. “Sticking” to reality?” (Courtesy of Land)



includes people (bodily gestures/social postures), colours, motifs and textures (stone, wood) and all sorts of objects (flowers, skies, trees, cars, benches, etc.). The databases from which Ikebe takes his files show hundreds of such items. Using the specific structure of digital technology, these databases (such as the well-known “cgarchitect.com”) were originally created for local use in architects’ offices some fifteen years ago, and are now widely published and accessible on the web (Figure 4).

Interestingly, according to the logic of these image creations, every single element, a tree, sky, a person, and so on, must be considered equally. In these nascent cosmologies, in the form of catalogues or lists of *things*, everything is treated alike and as basically of the same

nature. There is no ontological difference between things, everything being submitted to the same encoding, copying, cutting-pasting and correcting processes. One can intervene indiscriminately in everything, and the very nature of being is suspended at this stage of the architectural work. This characteristic is peculiar to digital techniques.

However, as shown in the previous example of the trees, making the composition work involves far more than “testing” and trying out alternatives, reducing or increasing the size until it actually *works*, and merely “pushing a button”. Rather, it involves compromises between elements which, after all, are not exactly of the same nature. It is about finding an appropriate way to make them cohabit. The problem is even

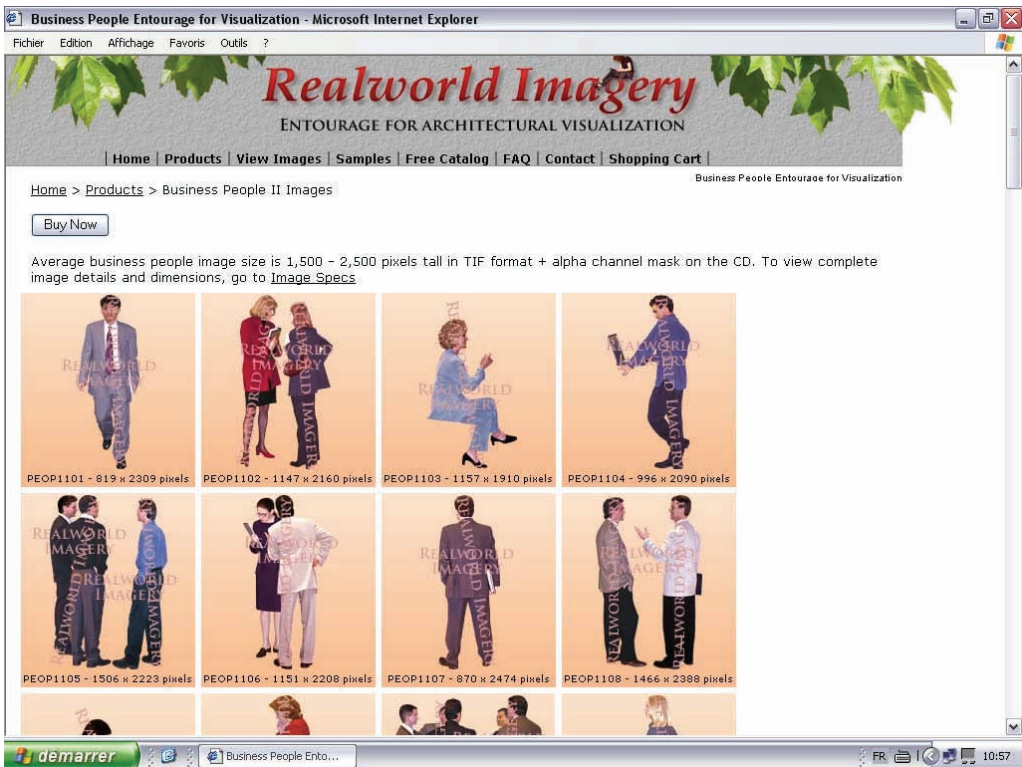


Figure 4. The world in pieces. (Taken from cgarchitect.com)

more clearly defined in situations where human figures are introduced into the drawings. According to Thomas Meyer and Alexander Ware of *Archimation*, a digital media company providing visual communication for architects and developers, people in a rendering involve a different method or “a different level of being real”<sup>4</sup>. Introducing them into a landscape is said to be one of the most challenging areas of perspective drawings. These figures are ‘ready-made’ people taken from catalogues available on the web, (“People walking”, “People at the weekend”, etc.), devoid of context, and representative of a set of social behaviours. People are then imported to the images in order to emphasise the “effect of reality”. Databases of people used by architects and computer designers basically show bodies in various positions. These generic bodies are neither singular nor individuals – in other words, they are not real subjects (Sloterdijk, 2002); neither are they complete identities in the fashion that, for instance, photographic portraits were used to figure legal representatives (Rouillé, 2005). They obtain meaning, however, in the relationships projected on their behalf with the virtual environment they are inserted into, with other beings or objects surrounding them. These figures – or *walkers on* (they are very often actors hired to express some generic human or social behaviour) – are put together in the drawing through a basic process of populating. According to computer designers working for architects, “we can do very realistic drawing, as long as we don’t introduce people”. In the still dominant paradigm of realism, the “super-realistic looking images” exert a great fascination on architects and clients, as if realistic images – the ability to make elements of the images cohabit

realistically – were a better guarantee that the project was feasible. However, drawings which include people often lose the effect of reality. Either people appear to float above the surface – as if *joints*, in the composition, were harder to dissimulate or the *fade* effect harder to produce; or drawings are victims of “over-definition of computer models” (Moreau, 2004: 74) and show over-standardised people. Therefore, despite being treated in the same way, some things or beings appear somehow to be resistant to *drawing*. Looking back on the history of architectural practices, the very *itemisation* of things, proper to digital technologies, does not seem to be in question here. Mario Carpo (2001), for example, shows how architecture during the Renaissance made much use of standardised and repeatable graphic components. Among the interchangeable graphics were landscapes, backgrounds and also body parts that appeared sometimes repeatedly in different illustrations, prefiguring the “visionaries of visual standardization (...) no less numerous in the sixteenth century than in the twentieth” (Carpo, 2001: 53) as well as its counterpart, the creation of enormous and somehow non-manageable databases.

### **What makes cosmological differences?**

In one of the first scripts produced by *Kuma Kengo & Associates (KKA)* for Expo 2005, architects seem to have found a way to overcome some beings’ resistance to be drawn in a convincing way. The result shows men with ghostly contours walking in a somewhat ghostly forest on large wooden walkways. Without ever touching the ground, these men are figured to cross the forest, at the level of

ferns, or higher, closer to the tops of the trees (Figure 5).

According to Kuma, the first step in the shaping of Expo 2005 was an *in situ* visualisation – Kuma went to the site, together with an anthropologist, Nakazawa Shin'ichi, and a photographer, Minato Chihiro. There, he “made a survey of the site, its contours and its spaces”. “My idea”, he said, “is not to cut the land as it is usually done in architecture, usually architects start by making the site plan. On the contrary, I want to keep the original landscape, to build the architecture *into* the landscape”. From this architectural *position*, defended at length in several essays, Kuma sought to “feel the site”, to let it talk; to give birth not to architectural objects but to “phenomena” (Kuma, 2000a). This is what Kuma named

“Topos architecture”, supposedly “an anti-architectural expression” aimed at “erasing” architecture itself (Kuma, 1997), dissolving it or making it as invisible as possible. This was, indeed, a very compromising form of architecture at a time when controversies concerning the Expo project were at their peak. Obeying the natural topography of the site and abandoning the modernist structure of World Fairs and their overbearing pavilions and exhibitions, the proposal, as epitomised in the perspective drawing, was in itself an answer to grave concerns. Giving the assurance that *nothing* architectural *per se* (no buildings, no walls, no permanent structures) would be constructed, it appeared to respect the forest’s precious and endangered species which local people and international



Figure 5. Men in the Forest according to Kuma. (Courtesy of KKAA)

associations wanted to protect. It also guaranteed that local people would still be allowed to go into the forest as they used to do, walking with children or grand-children and collecting butterflies.

As if this were not enough, the very diplomatic position Kuma defended is expressed in another rendering showing people walking in the forest, wearing what seem to be common sunglasses (Figure 6).

This rendering seems to promise, once again, not to pollute nature with buildings or pavilions, but move into the 21<sup>st</sup> century without the modernist cortege of objects and imageries. The sunglasses in the rendering are actually virtual glasses, devices known as STHMD for *See-Through Head-Mounted Displays* which attempt to transform the forest,

the exposition's space, into "the very source of experience" (Pavarini 1999: 48). Kuma worked on this virtual project with a Japanese computer scientist, Hirose Michitaka, a colleague and friend of his whom he described as an *otaku*, one of those technology and media-obsessed fans who are commonly described as socially-inept (Kinsella, 2000). As well as being a fan of *manga* and computer games, Hirose is a researcher in systems engineering and human interface development, associate professor at the School of Engineering, University of Tokyo. In 1990, he developed with his team a new generation of see-through type Head Mounted Displays (STHMD),<sup>5</sup> originally engineered to superimpose the internal structure of a mechanism onto the actual machine – as having at once



Figure 6. The forest as "the very source of experience". (Courtesy of KKAA)

the machine and its user's guide. Hirose designed a new prototype for the Expo 2005, for "field exhibition" which would provide "each visitor individually" with various exhibits or *visions* (Hirose, 2005: 9) which would be superimposed onto natural reality. The device was based on an Augmented Reality (AR) system, using the same approach as a Virtual Reality (VR) system, with the exception that the synthetic visual stimuli increase the view of the real scene rather than replace it. Instead of blocking the real world view with screens and optics, the real and synthetic views are merged with the STHMD. What had been nothing but a *sensory prosthesis* was to be used to promote renewed relationships between humankind and nature, by "increasing" nature's idiosyncratic characteristics which had been rendered over time. The STHMD helps the user walk along and experience his or her natural environment. The perspective drawings produced by Kuma and his team use Hirose's technological innovation, showing a "hybrid space" which adds new properties or referents to the characteristics of the natural world. This new configuration demonstrates no hierarchy among beings: People are only one kind of being among many, such as fairies or muses, for example, made present and visible again with this technique. The scene figured in such drawings is *essential* in the sense that it renders a time of harmonious cohabitation and mutual understanding between humans and non-humans.

The peculiarities of the cosmology designed by Kuma at the beginning of the Expo project appear even clearer when compared with the script designed by Ikebe few years later. The drawings, whose creation we followed, are among the more recent ones produced. It shows Expo 2005 in its stable state, after all the

controversy has died down. Renderings figure wooden paths or clear plazas which are frequented, but not overcrowded, by people using the site in an obviously unproblematic fashion. Young couples are seen walking hand-in-hand with their children or carrying a baby, looking after them benevolently. The same couples reappear from one rendering to another, with same children, fitting more or less into the context. Like Kuma's drawings, these ones also refer to an essential scene, but with a different meaning. This shows Japan in its youth, society in its minima, reedited again and again from one image to another. The world figured here does not cause much surprise; it is satisfied with giving credit to an already well-established social order based on a reiterated *family contract*. The contract with nature has eventually been subsumed under a contract among generations, the one and only contract believed able to solve social delinquencies and the "illness of civilisation" (Lock, 1990). Digital montage is used to caution and play out a cosmology that politicians have envisioned and have been advocating for years in Japan. Said to be based on "the state of things", these drawings are designed in such a way as purposely to avoid, according to Wakamatsu, conceptual overflow or utopia. It is doubtful that the capacity for a reversal of relationships between humans and non-humans as seen in Kuma's proposal, for example, could provoke unanimity and create communality. As there are so many conceptions of nature around the world, argues Wakamatsu, how could one seriously believe that an architectural projection could possibly make beings cohabit on new basis? Choosing to re-edite a consensual social format, Wakamatsu does not give much credit to iconographic innovation,

opting for reality rather than utopia. This reality is made up of people who “need to have fun”; “it is the first thing to consider, how to make people come along”, says Wakamatsu. To “experience dream, wonder and joy” is, indeed, one of the decisive formulas epitomising Expo 2005, as its website proclaims. The project, reduced to this injunction of communality, chooses to re-act the usual routine of fairs (pavilions, stages of development, cultural and national manifestations, etc.). The project abandons the original, post-modernist, ambition of “rediscovering nature’s wisdom”, and takes for granted the ontological delimitations instead of envisioning new ones, ending up to propose *remakes* of modernist assumptions.

## Conclusion

Perspective renderings constitute a crucial step in the architectural process, in that this is the moment when architects introduce all the non-architectural elements, people, trees and greenery, skies and sometimes clouds, cars, and reflections of sunlight. In this respect, they provide means to approach the nitty-gritty work required to make all these beings cohabit. Which conditions are required for a ‘real’ tree, imported from the site, computerised and downsized, to share space with prominent banners or ostentatious pavilions? What technical operations are needed to allow people to live within a digital frame without seeming out of place?

In order to approach these issues, I followed architects and computer designers in their attempts to give birth to a new world. I tried to capture the making of an image and its inner qualities by questioning the nature of

the very different elements that make up the composition. Very interestingly, observing practices shows that the actual moment of ‘pixellisation’ – which consists of de-essentialisation followed by re-essentialisation – offers a unique opportunity to put everything back on the table and redistribute the nature of beings. The operation, however, can not be summed up by some kind of demiurgic act, and the architect or designer cannot be seen as the true creator of the reality in which we live. To produce a social sphere is a little more complex than that. In filling up a blank frame with fundamentally substitutable elements, perspective drawings work using exploratory combinations which are rife with uncertainties. As shown by the contrastive drawings designed during the Expo project, producing scenery which obviously sympathises with the social ‘state of things’ or, on the contrary, scenery that obviously compromises it and invites us to dismantle and reconfigure it is less a question of political involvement than a matter of experimentation. It is a question of the effects of montage, which are nothing other than effects of cohabitation. The montage superimposes different layers with different references: The people, trees, skies and contours of the site are ‘real’ in a sense, while the structure of the building constructed in three-dimensions on the computer is virtual. An effect misses its point when these references are recognisable for what they are – the real for being a truncated, cut and pasted real; the virtual for being virtual without any chance of ever becoming real. In other words, while successful cohabitations are difficult to predict, architects and designers can try over and over again to render them, without ever exhausting the range of possible worlds.

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## Notes

- 1 The notion of social sphere I refer to here is borrowed from Peter Sloterdijk and his trilogy *Spheres*. “Life is a matter of form” is the principal theme in *Spheres* (Sloterdijk, 2002: 13). As with ‘world’ or ‘cosmology’, I also use ‘sphere’ to illustrate the outstanding quality of architectural renderings to serve as extending proposals to organise/re-organise our life and agenda.
- 2 Osaka 1970 was the first World Fair ever held in Asia and is still today considered as the greatest success in the history of World Fairs. Osaka 70 claimed to be an urban fair: Its aim was to convince the West that Japan, from then on, would be part of the modern world, announcing Japan’s emergence as a world technological power. More than thirty years later, the organisers of Expo 2005, taking Osaka 70 as a reference, explain that the theme for 2005 was chosen “in regret at the mistakes of the past and in determination to make [the] dream come true”. Though grateful to the industrial growth and

economic development – that Osaka 70 exemplified – it is said that Japan “realized that this was not the sum of its aspirations” (<http://www.expo2005.or.jp>).

- 3 For more about this issue, see the ongoing research and design project of Minato Chihiro, Tama Art University, to whom I owe some answers.
- 4 Unpublished communication, 2005: “Archimation. Image production in practice” Workshop “The Artistry of Thinking like an Architect” organised by Jean-Baptiste Joly and Albena Yaneva. Akademie Schloss Solitude, Stuttgart, May 12-14.
- 5 STHMDs have existed since the mid 1960s, when Ivan Sutherland built the first see-through head-mounted display system for displaying real-time computer-generated images. A number of STHMDs have been built since Sutherland’s pioneering work.

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