

The Intrusive Rendering: Dictation of Stereotypes and the Extra-Ordinary

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It is no longer a surprise these days to see a photographic image of a building with a rather dubious existence: whether or not it has actually been built or still exists only as a project yet to be realised. A photo-realistic image of a building that has not yet been realised is conventionally known as the rendering, a practical and effective tool of representation of architectural projects. While contemporary practices heavily rely on a parallel industry of image production for these renderings, this phenomenon has been mostly treated, within the field of architecture, as subordinate to critical design discourses. The rendering comes after the design; it is an image-production akin to an advertisement, a commercial commodity aiming to sell the design, and a visualisation to seduce the eyes of the client and the general public audience.

Out of the many examples of renderings produced for international architectural competition entries, it is often the case that a successful rendering exerts a tremendous power in winning the favour of the jury panel and the public audience. This is particular evident in the context of Taiwan, and at an even larger scale in China. This is the art of rendering that has had a phenomenal effect on the production, perception and valuation of architecture, which confronts the subordinate role of the rendering narrowly assumed within design practices in the West.

This paper examines a lack of awareness of the implications of renderings upon the design development of a project, which is entangled with prejudices formed historically in the discourses on representation in relation to the idea of art and design in the West, going back to philosophical arguments formed in the Classical period. On the other hand, the potentially intrusive role that rendering plays in the design process is investigated in the particular context of Taiwan and China, where the issue of representation has been built upon an entirely different set of cultural criteria. This opens up questions on the condition of the hypothetical in rendering a vision, the co-existence of the truth and the lie, the stereotypical imageries appearing as dictations of meaning and framing the extra-ordinaries, and how all these factors of the rendering sets different judgement criteria on the refinement and manipulation of what is meant to be a 'good' design.

Introduction

Unlike the painter with the brush on the easel or the sculptor with the chisel on the stone, the architect is persistently faced with the difficulty of not being able to work directly on the architectural object of creation, but having always to work through a visual medium of representation. Robin Evans observes this condition of the

architect's creative work in his 1986 essay 'Translations from Drawing to Building' not simply to emphasise the limitation posed, but to explore potentials that are opened up through this necessary process by which architects work through 'simulation' via drawings and models.¹ He states: '[...] for architecture, even in the solitude of pretended autonomy, there is one unfailing communicant, and that is the drawing' (Evans 1997: 155).

For centuries, before the advance of technology allowed the dissemination of visual information to the masses, most construction works were carried out without the support of architectural drawings with which to communicate ideas or methods. Construction works were done following a tradition of craftsmanship techniques, functional requirements and symbolic purposes which were passed down from generation to generation. Few architectural drawings were made and even fewer survived for external public view.² Architecture was essentially a constructive practice, and the impression and value of architecture came out of people's physical and sensual experience of the built environment. With the introduction of printing, lithography, photography, and eventually digital technology, architecture's ardent basis in physicality began to dissolve. With these developments, architecture has come to be experienced and valued not solely in the form of physical buildings, but as necessarily accompanied by images and texts. Such a fundamental shift in modes of architectural experience is acknowledged by contemporary architects, as can be seen in a remark by Bernard Tshumi in the 1980s: 'Architecture does not exist without drawing, in the same way that architecture does not exist without texts' (quoted in Forty 2004: 29).

This paper investigates a particular type of architectural representation – the 'rendering' – that has developed tremendously in recent years and now contests the preconceived hierarchical relationship between the design process and its representations. Instead of playing the role of Evans's 'unfailing communicant' of design, the overriding power of the rendering, awash with market expectations and popular imageries, competes with the specialised autonomy of the design process. The design as represented through renderings dissolves the authority of the design as a pure and intellectualised enterprise. Normally in design practice the rendering is expected to appear near the conclusive stage of the design development, but with greater demand for communication with the mass public,

¹ '[...] the peculiar disadvantage under which architects labour, never working directly with the object of their thought, always working at it through some intervening medium, almost always the drawing, while painters and sculptors, who might spend some time on preliminary sketches and maquettes, all ended up working on the thing itself which, naturally, absorbed most of their attention and effort' (Evans 1997:156).

² The concept of 'design' (in Italian '*disegno*' or '*progetto*') in a sense close to our modern understanding appeared only around the fourteenth century within the Italian humanist thinking concerning the artistic creativity of 'man'. Writings by Alberti best illustrate this preoccupation with the development of a whole system of visual representation to make visible a universal and transcendental order of the creation of God. Architectural projects as developed in drawings bring philosophical ideas to visibility through a rigorous and mathematical exercise of measurements, compositions and ordering of relations between parts.

combined with the convenience of modern technology, the more frequently architects resort to renderings. Particularly in places where there is rapid urban transformation and a rapid rate of construction, architects find themselves in situations where the rendering of the design is produced ahead of the design development, so that a simulated complete vision appears before the spatial and functional layout of the building has been worked out. This simulation actively intrudes and upsets the normal routine of design, and consequently the effort of design is directed to support and fit into the projected vision.

To understand the nature of renderings and the intention behind their production, I start by analysing two examples of renderings produced by contemporary Taiwanese architects in recent competition-winning projects. My focus is not on the designs themselves, but on a characteristic formula by which a rendering is constructed that is full of atmospheric effects and visual stereotypes. The image delivers a sense of the design which can be immediately understood and appreciated by the mass public. Through these visual devices, rendering asserts a provocative power to arouse affective responses in the mind of the perceiver – it speaks a visual language different from other forms of architectural drawings such as sketches, plans, sections, and diagrams.

The visual language of renderings is based on pre-existing images: that which you have seen before, historically or personally associated, familiar to public perception and mass-reproduced. The stock of this visual language is circumscribed by social and political conditions of the time of its production. This stock is not exclusively defined by professional specificities of architectural practices, such as spatial elements or construction details. Because of this common base with the popular imagination, the rendering has a tremendous impact upon the design that is outside the control of the architect.

Many architects would shudder at this idea of the rendering dominating over design imagination, and this prejudice can be found at the core of twentieth century Modernism, nineteenth century Beaux-Arts training, eighteenth and seventeenth century Classicism during the Enlightenment, and further back to philosophical arguments formed in the fourteenth century during the Italian Renaissance. On the one hand, a whole sophisticated system of representation since the fourteenth century has developed based on the belief that the essence of the idea of the design is embedded in a graphical matrix of projectional lines, grids, geometries, and proportional measurements. On the other hand, and different from abstracted line drawings, there is a perceived need to produce realistic depiction to communicate the design to the lay public. This type of realistic depiction to communicate design, historically known as ‘artist’s impression’ or ‘artist’s illustration’, was produced to supplement other geometrical line drawings and to enhance the effect of the design with picturesque or sentimental qualities upon the mind of the perceiver.³ This form of image production has been treated in

³ Bob Giddings and Margaret Horne describe this: ‘It was the 18th century that saw the emergence of architects who had begun their careers as artists or sculptors, often studying in Italy. Towards the end of the 18th century the Picturesque Tradition, and its fashion for architecture and landscape gardening saw an establishment of designs composed as pictures. The new media and technique of the Renaissance had resulted in greater freedom of expression for the draughtsman and increased stature for the artist. Drawings,

most historical accounts of architecture to serve an artistic function that is separate from the critical architectural content.

However much the rendering has been considered as a compromised form of representation and merely a commercial commodity to sell the design to the external world, some architects have recognised and exploited its capacity to project visionary ideas. I will discuss some images by architects of the Avant-Garde generations in the 1950s and 60s where renderings were produced to allow the dramatic co-existence of the extraordinary vision and the nostalgic view. The significance of their work is that the architectural idea is carried solely by these graphic images; the project stops at the drawings without the intention that they should become real physical constructions. Instead of being a by-product of the design process, the making of the rendering is the actual critical process of design. This provides an alternative account of the nature of renderings in relation to architectural design imagination in the Western tradition.

From an understanding of the role of renderings historically in the West, this paper moves on to examine this type of representation in a wholly different contemporary context: the Chinese-speaking world in the Far East, where, very interestingly, we can see a tremendous surge of the use of renderings at all stages of design. The rapid urban transformation and construction boom sweeping across cities such as Taipei and Shanghai in this region is exemplary in registering the impact of the dependence on rendering production upon the design profession. This can be observed in local practices as well as foreign practices involved in the Chinese market. I will comment on the phenomenal growth of the rendering-production industry and, in the final part of this paper, analyse examples of renderings produced by architects in this region. Specific political, social and cultural conditions surrounding the architectural market of this region allow the rendering to take on the task of an efficient and effective conveyor of the design as demanded by general public aspirations and values.

Instead of the presumed supplementary, artistic function served by the rendering, it now constitutes the site and content of architectural design. This way of working applies to the output of the general architectural field in the region of the Far East and not just to a small group of radical designers. I believe this is what makes the Chinese field of architectural practices a significant context in which to study the way renderings offer an alternative domain of visual imagination and communication that overrides the normally expected routine of design. The investigation of this visual domain and implications in the transformation of the physical environment is central to the argument that this paper will explore.

In the final part, the technical process of producing renderings in Chinese practices is examined based on my own personal involvement with a typical case of project design. It is highly relevant to raise the question of a new organisation of the human sense perception that comes with this dominance of the digital virtual simulation, where not only the design is represented, but also manipulated. This condition of being freely manipulable has a consequence that digital simulations are more impressive as spectacles of technical innovation and less as the faithful

paintings and physical models, making use of the technique of perspective, were used as a way of presenting ideas and clients, and some beautiful presentations emerged' (Giddings and Horne 2001: 2).

representative of a design concept. Walter Benjamin explains (1999: 216): 'The manner in which human sense perception is organised, the medium in which it is accomplished, is determined not only by nature but by historical circumstances as well.' Specific circumstances in the Chinese-speaking context, the demand for the aesthetics of renderings, how they are being consumed and how they manifest a certain ideological aspiration, need to be investigated to understand the relationships between the rendering-production industry and the architectural profession.

The exercise of comparative analysis between patterns of practices in the West and that in the booming Far East does not assume that the East and the West are distinct entities that operate somewhat in polar opposition to one another, such as the exotic 'Other' as portrayed by the Orientalist perspective. The methodology offered by this paper acts as a starting point from which to understand the impact of 3D simulated image-led design criteria as a global issue. Many of the issues at a greater socio-political level are beyond the scope of this paper and are introduced as brief generalised accounts and personal observations. Within the more limited scope of renderings and rendered reality, I wish to argue for a critical re-examination of how the exploitation of the rendering process is transforming the relationship between the commonly assumed hierarchy of the design idea, representations, and designed reality.

The Atmospheric Effect



Fig. 1: Rendering of Sky-well night view (© CKPR/Tsai-her Cheng [鄭采和], Taiwan)

Figure 1 (above) was produced by a contemporary Taiwanese architect as part of her design proposal for an earthquake memorial in central Taiwan in 2003. In this international competition, her scheme was given first prize (*Dialogue* 2004a).

The most striking thing about this image is its dramatic atmosphere. An encircling movement conveys a sense of gathering and anticipation to witness something extraordinary. Against the depth of the dark sky, lights are emerging

everywhere from obscure sources, shimmering, reflecting, floating in the air. The grace of the magnificent full moon softly touches the ground, marking a tantalising inward focus. This light embraces the lone figure in the foreground playing a musical instrument. Three simple elements define this concentrated enclosure: below is the stony platform with a rising mist at the far corner, in between is the light dissolving in the depth of the surrounding bamboo forest, and above are a blanket of red lights like fireballs dancing in mid-air.

The purpose of this image is to convey this atmosphere to us the perceivers. While other drawings submitted as part of this design proposal, such as plans, sections and axonometric projections, are for the purpose of giving precise architectural information about the project, this atmospheric image shows very little of such information. This image cannot be accurately measured and cannot act as an instruction to the physical construction, yet it is immensely effective in arousing the interest of those who have no prior knowledge of architecture.

This image creates a memorable impression of the project without the need for the viewer to understand the information presented in other types of architectural drawings, such as the plan and the section, which are shown in Figures 2 and 3 below.



Fig. 2: Section across tilted terrain (© CKPR/ Tsai-her Cheng, Taiwan)

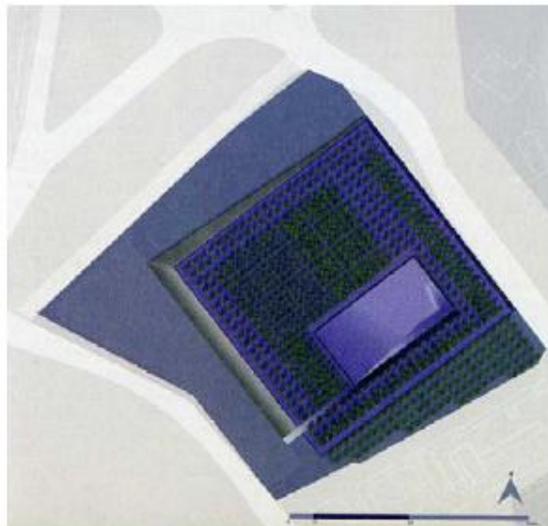


Fig. 3: Plan (© CKPR/ Tsai-her Cheng, Taiwan)

Visual Stereotypes

Another characteristic of Figure 1 is that it has been constructed by putting together visual elements that are familiar and immediately recognisable by the general public. This becomes obvious if we take the image apart (see Figure 4, next page), which shows exactly six visual elements, most of which have very distinct cultural connotations:

- Bamboo symbolises endurance and longevity in Chinese culture, and is commonly featured in traditional Chinese paintings where it is associated with the cultivated lives of the Chinese scholars (the literati) and their activities in poetry, calligraphy, painting, music and spiritual meditations.
- Lanterns are frequently used in large quantities on important days of celebration on traditional Chinese calendars. These glowing red lights mark a special festive atmosphere, and are believed to be able to drive away bad spirits and to bring good luck.
- The roundness of the full moon symbolises the moment of completeness when people gather to celebrate. The mid-autumn moon festival is an annual event, on 15 July on the traditional Chinese calendar, when friends and family gather to admire the moon.
- The night sky encircled by the bamboo forest is the ceremonial void alluding to the 'sky-well', a square opening in the roof of traditional temples and dwellings. This spatial feature is central to the concept of the design project, as noted by the architect: the 'sky-well' is the heart of this memorial park.
- In traditional temples, an elevated platform symbolises the earth below, in opposition to the sky above. The platform is the territory of humans, where important prayer ceremonies take place and where offerings are made to the sky, the domain of the gods. In this project, the platform is tilted to represent the ground that is deformed by the earthquake.
- The musician wears traditional Chinese clothing and plays the quintessential Chinese string instrument called the Er-hu. This is a familiar figure of music-making from the street to the stage. Here it suggests to the viewer the experience of an event that could happen in this memorial park.

These elements are visual stereotypes, and each evokes a clear and predictable set of associations from its audience. They are visual *clichés* already excessively quoted in historical or contemporary visual media. On the one hand, this image makes use of carefully selected visual stereotypes to provoke certain nostalgic and idealistic values in Chinese culture. On the other hand, the image overall asserts an atmospheric effect that anticipates an extraordinary experience that the design shall bring. The combination of these two visual strategies, one in parts and the other as a whole, makes this image successful in impressing upon the viewer the distinct and memorable quality of this project. The image is capable of promising how the project would be significant in cultural, social and even ideological terms, beyond the design of the physical object.

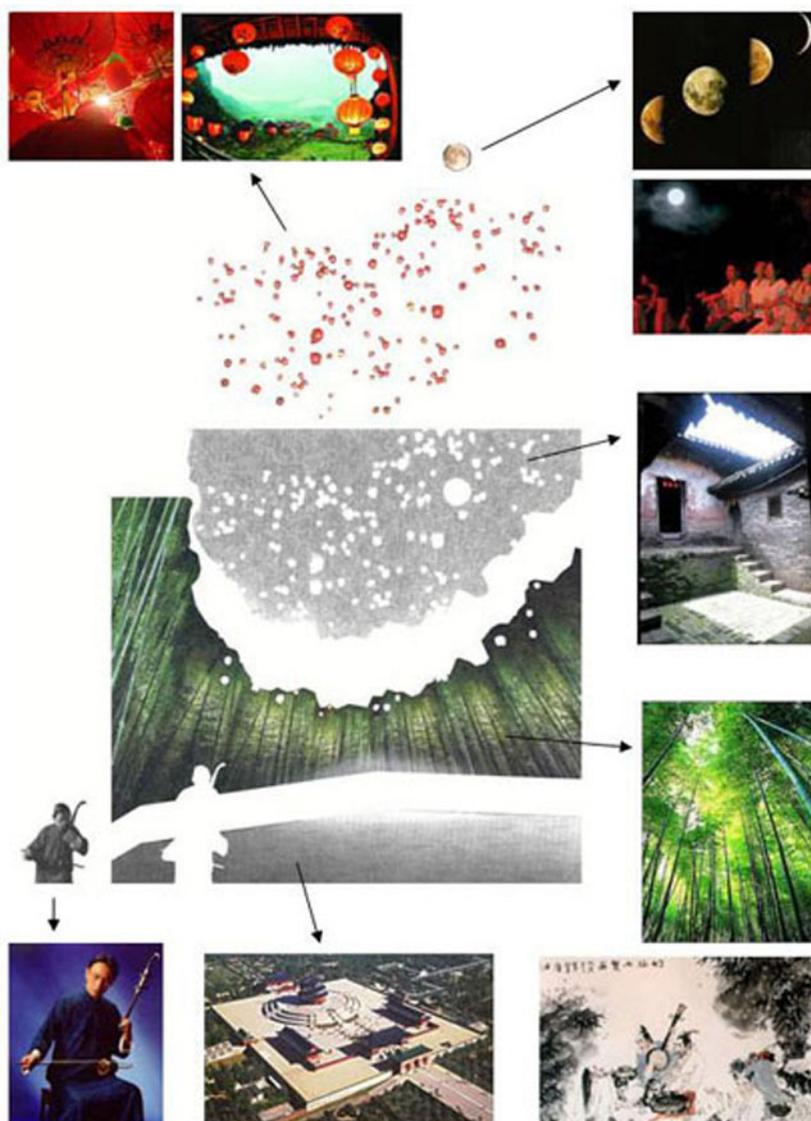


Fig. 4: Analysis of rendering: six visual stereotypes

Overleaf is another image (Figure 5) also produced as part of a submission for another international architectural competition in Taiwan (*Dialogue* 2004b). We see even less indication of a physical construction. The design scheme as represented here has been reduced to strips of overlapping colours along the far horizon, diffusing into the sky at dusk and the reflective surface of the water. The presence of the sail boats and silhouettes of people in the foreground appears to be more substantial than the presence of architecture, which is dissolving into ambiguous light and shadow. Again, we see visual stereotypes at play, and the overwhelming atmospheric effect beholds what the design promises to deliver as a special experience for viewers.



Fig. 5: Rendering (© Original Studio and Cheng Yao-jui Architects Assoc. [原創空間實驗室和陳耀如建築師事務所], Taiwan)

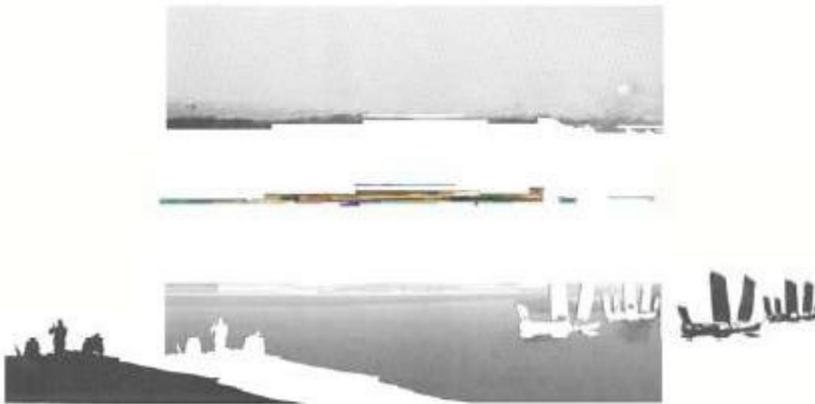


Fig. 6: Analysis of rendering: visual stereotypes

Figures 5 and 6 both create a visual engagement with the viewer that does not require any practical knowledge of the actual design, so in other words, it arouses an emotional response instead of an intellectual response from the viewer. Here we are dealing with a particular way of visualising architectural projects that is called the 'rendering'.

What is a Rendering?

Rendering is an effective way of presenting an architectural project as if it were already part of reality. The image on the next page on the left (Figure 7) shows a design presented as simple objects in a perspective view, while the image on the right (Figure 8) shows the final photo-realistic rendering. Manuals on rendering technique illustrate this process as the merging of the perspective of a line-drawing design and a photograph of the context onto one pictorial field. An illusion of the design becomes reality through rendering.⁴ This is based on the assumption that

⁴ 'In the first stage, the aspiring renderer is encouraged to study existing settings through the unorthodox method of tracing or copying from photographs. In the second phase, the renderer is urged to develop the ability to translate features in photographs into three-

the design represented by lines in perspective projection remains an illusion while the process of rendering allows the design to appear in context with a photo-realistic presence. The design as a line-drawing remains abstracted and hypothetical, whereas the design as a photograph is believed to be real.



Figs 7 and 8: The process of rendering by computer from basic virtual 3D model to collaging of photo-realistic images, Shanghai (© O4workshop 2006)

The word 'rendering' literally means an act of interpretation, or a translation from one means of expression to another. For instance, the rendering of a piece of music or drama is the performance of it, which involves the interpretation of the work and the communication of its artistic intent. In visual terms, to interpret or to translate means to bring something that is not immediately visible or obviously expressed into a form of presentation that can be seen and clearly understood, i.e. to render something visible. In a similar sense, we can see why 'rendering' in the field of architecture has the purpose of communicating the nature of the design in a visual way that becomes obvious to any viewer, therefore demanding that the image appear as realistic as possible. Rendering translates a mental illusion of a design into a photograph, which is a type of image that we commonly believe to capture a certain truth about reality.

Apart from the name 'rendering', the process of visually merging the design project and a background context onto a realistic pictorial field has also been known historically as 'artist's impression' or 'artist's illustration'. This process can be done by hand or more recently by computer, but the technical procedure is basically the same, involving the setting up of precise perspectives, simulations of naturalistic lighting effects and material textures, addition of details of the background environment and traces of human inhabitations, either as people in activities or furniture objects.

Nowadays, given the tremendous advance in digital technology, it is no longer a surprise to see renderings of architectural projects that appear to be so realistic as to fool the viewer into believing that they are already part of reality, as can be seen in Figures 9 and 10 on the page facing.

By narrowing the gap between the hypothetical and the real, and visually conforming to the most conventional visual form of a photograph, the rendering

dimensional models. In the third and final phase, the renderer is encouraged to bring idea and the reality together into one believable picture' (Forseth 1991: vii).



Figs 9 and 10: Digital renderings (© Crystal Digital Technology Ltd, China)

offers us a believable illusion. This is precisely where the rendering is fundamentally different from architectural photography, although both attempt to convey certain realistic aspects of an architectural object. It is useful to bring in the analogy of the Image-World that Susan Sontag (1979: 153) speaks about: instead of 'realities understood in the form of images', it is 'now being given to realities understood to be images, illusions.'⁵ While architectural photography is to reveal, capture, discover, frame, and clarify realities of a building project through the form of photography, the rendering has the power to override, substitute, intrude, distort, and overwhelm our current reality with the illusion of another reality promised by the building project. The illusion conjured by the rendering is not merely the appearance of a partial capturing of a greater reality; rather, it offers itself as a significant 'other world' of an alternative, and somehow extraordinary, reality.

The message conveyed by the rendering is easily understood since it is visually consumed just like a conventional photograph. As the analysis of the visual ingredients of renderings from above reveals, the image is made entirely of things we have seen before. Since the rendering intends to address an audience that is beyond the architectural discipline, it is self-conscious about the potential of making a popular impression of the project. The use of visual stereotypes secures the immediacy of popular recognition, and hence the image can control the certainty of its effect and emotional response.

The Hatred of Rendering

As I have pointed out before, the rendering is differentiated from other conventional architectural drawings by the fact that it does not work with measured lines, orthographical projections or analytical diagrams, but with the composing, layering, transferring, collaging and blending of flattened two-dimensional photographic images. The differentiation of these two means of visualisation is not only at the level of production method, but also in the presumption of the kinds of

⁵ Sontag (1979: 153) quotes from the preface to the second edition of Feuerbach's *The Essence of Christianity* '[...] our era [...] prefers the image to the thing, the copy to the original, the representation to the reality, appearance to being.'

information or message they can carry, and the roles they play in the design process. Furthermore, the distinction between working with orthographical lines and working with flattened images reflects a divide of concern between the representation of the idea (the intellectual/conceptual project) and the representation of the physical object (the corporeal/experiential project) deeply embedded in the design process of architectural practices.

However, between these two means of visualisation lies something more than a categorical distinction. Within typical Western architectural practices there is a belief that certain forms of visualisation are more productive towards the design process than others.⁶ A higher esteem is attached to working with the orthographical system of drawings, i.e. to work with plans, sections, elevations, isometric or axometric projections, to develop the architectural idea. To work with flattened images, i.e. the rendering, is restricted to communication with people outside the architectural profession, therefore of a lesser value in relation to the disciplinary content of the design.

This prevalent conviction of the differentiation and prejudice within the architectural drawing systems is best exemplified by Le Corbusier's remark in a lecture presented in Brazil in 1930:

I should like to give you the *hatred of rendering*. For to render is only to cover a sheet of paper with seductive things; these are the 'styles' or the 'orders'; these are *fashions*. Architecture is in space, in extent, in depth, in height: it is volumes and circulation. Architecture is made *inside one's head*. The sheet of paper is useful only to fix the design, to transmit it to one's client and one's contractor. Everything is in the plan and section (Le Corbusier 1991: 230).

Le Corbusier was one of the most influential architects of the twentieth century, playing a central role in the Modernism movement of architecture in the 1920s and 30s. Clearly, he disregards the rendering and sees that it deserves no place in the legitimate course of the design imagination. The superior *idea* that is inside the architect's mind is conveyed by the plan and section, not the rendering. When it comes to how different forms of representation are valued within architectural practice, Le Corbusier's remark reflects a certain hierarchy where the representation of the *idea* is superior and more essential than the representation of the *object* itself.

In Le Corbusier's numerous writings, he makes extensive efforts to demonstrate to us the importance of the 'plan' as the generator, the basis of all architectural imagination and the decisive moment that determines everything (Le Corbusier

⁶ I use the word 'productive' to describe the process whereby architectural drawings aim towards an eventual physical construction. This is with reference to Robin Evan's statement: 'Drawing in architecture is not done after nature, but prior to construction; it is not so much produced by reflection on the reality outside the drawing, as productive of a reality that will end up outside the drawing [...] it is through this inversion that architectural drawing has obtained an enormous and largely unacknowledged generative power: by stealth' (Evans 1997:165).

1989: 47).⁷ He emphasises the plan and section as austere abstractions of the design *idea*, which is part of a pure, rational, and scientific process of design. This system is governed by principles found in mathematics and geometry; these lines have definite measurements and they show proportional relationship between parts and the whole. These lines already imply three-dimensional order in mass, form and spatial sequence.

The plan and section manifest the *idea* of the design, and therefore they express the beauty of this process of scientific abstraction, which Le Corbusier believes is the way to achieve architecture in the highest order of human spirit.⁸ More importantly, the plan and section are not considered as passive representations of design, but they are analytical and ordering tools to assist the development of the *idea*, which allows the architect to assert a control over the composition and organisation of the whole project. The essence of the architectural design is developed as an intellectual process in the mind and embodied in drawings of plans and sections.

Architects use plans, sections, elevations, axonometrics or diagrams to delineate the objective content of the design scheme, from spatial layout and functional arrangements to construction details. These drawings define the building as a physical object and instruct how each part relates to the whole and how it is constructed and used. To be able to understand these drawings, one requires certain disciplinary knowledge about architecture and technical conventions of how these drawings are set out. These drawings are used mainly for communication amongst those somehow involved with the architectural practice: architects, contractors, builders, surveyors, planners, etc.

By contrast, rendering is a type of architectural drawing that concerns itself with immediate visual effects and common associations through visual stereotypes. Due to its intentional affinity with popular visual *clichés* and sensations, rendering as a form of representation hovers uncomfortably outside formal discourses on architectural design and theory. In typical architectural practice here in the UK, renderings are produced at certain stages when the design reaches a conclusive pause, and there is a need to communicate to an external audience the nature of the project. Therefore rendering exists as an afterthought of design; it is deemed as an advertisement, a commercial commodity aiming to seduce the viewers and sell the design. This is the reason why architects tend to express a general feeling of disdain when they are faced with the production of renderings: it is all too banal to reflect the true essence of the architectural idea.

The Idea in the Lines

To study this dismissive attitude towards rendering within typical Western architectural practices requires going back to a particular moment in architectural history when certain forms of drawing began to be significant in representing architectural ideas. It is beyond the scope of this paper to trace in detail the

⁷ The emphasis on the plan and section can also be found in his *Precisions on the Present State of Architecture and City Planning* (1991).

⁸ See the section on 'Three Reminders to Architects: III Plan' in his *Towards a New Architecture* (1991: 43).

development of representational systems in architecture, but instead, I will focus on works by a few key figures in architectural history to explain this particular tendency of the design process to rely on the sophistication of the technical convention of line drawings.

It was Alberti in the fourteenth-century Renaissance who stated that the basis of the noble and beautiful art of painting is rooted in nature, which is a relationship that can be demonstrated entirely mathematically.⁹ This rationale also applies to architecture, since it was during that time when drawings became an essential medium to express architectural ideas. Alberti's treatises on painting and architecture demonstrate the systematic relationship between lines drawn on a sheet of paper and the representation of the three-dimensional reality around us. Through the development of orthographical and perspectival projections, drawn lines start to take up geometrical, volumetric, and spatial significance. The basis of the philosophical argument at that time was the belief that these systems of drawing are ways of observing, revealing, and representing a certain objective truth about the universal harmony in nature, as God's creation.

Alberti worked especially on the principle of constructing two-dimensional drawings to represent three-dimensional reality in view or envisioned by the design. The notion of using the grid in graphic projection was developed based on the relative positioning of the subjective viewer and the object of view, allowing a systematic means of depicting the reality in view onto a sheet of paper. The plan and section are part of a genre of drawings known as orthographical projections, which in a simple sense means that the object is drawn as if every point on its surface is always perpendicular and of equal distance to the point of observation. Basically this type of drawing appears to be absolutely flat, can be systematically measured to scale and is devoid of any perspectival distortion. Other related forms of orthographical projections include the elevation, isometric and axonometric.

Another type of projection is the perspective, which was developed at the time of the Renaissance also from the relative positioning of a viewing subject and an object in view. It is important to note that perspectival projection was conceived of along the same rationale as orthographical projections, which are meant to reveal the transcendental and invisible order of the universe. The perspective has a higher intellectual significance than simply to capture a realistic view. This is evident in the application of perspectival projection in oil paintings of that time, for instance, in Massacio's *Trinity* in 1425, where the construction of an illusion of depth on the painting effectively made visible a cosmological order of space and time understood in that period of time.

The central concern of this system of visualisation developed since the Renaissance is the manifestation of the idea, or the intellectual process of design, rather than with the physical reality of the building object. Philosophical arguments laid out by Alberti elevated this system of visualisation to an archetypal and

⁹ Alberti dedicated his book *On Painting* to Filippo Brunelleschi, and in the dedication, written in 1435, he stressed the foundation of art to be in pure mathematics, the key to decipher the truth and beauty of universal harmony in nature. 'The first, which is entirely mathematical, shows how this noble and beautiful art [of painting] arises from roots within Nature herself.' (Alberti 1991: 35). This is a conviction precisely paraphrased by Le Corbusier nearly 500 years later (Le Corbusier 1989: 11n5).

metaphysical status; it is representative of the idea in the mind. Consequently, architectural design can sustain itself solely through drawings within this system of visualisation, and implications at a physical level are secondary in the discourse.

Throughout the sixteenth and seventeenth centuries in Europe, this system of projected line drawings became more sophisticated, as is evident in design drawings done by Palladio and Vignola. Palladio's design process relies on this system of super-flat elevations to work out proportional and compositional relationships across the building *façades*, for instance in his design of the Palazzo Porto Fest in Vicenza (1549). These relationships are coherent within the graphical system, but for someone standing in front of the real building, the intricate mathematical relationship of the design is difficult to discern. At that time, the grasp of the former was much more important than the concern for the latter; these drawings are means by which the harmonious order of the design at a philosophical and transcendental level is manifested in the physical construct. Vignola's use of cut-away orthographic projection allows the design's plan, section, elevation and volumetric depth of inside and outside to be shown simultaneously, for example, in his drawing of Villa Farnese Caprarola (1617). Yet these graphic representations hardly indicate how the building in reality would appear to ordinary perception.

A whole technological enterprise supporting the design profession can be said to have developed alongside architecture's continuing absorption with the geometrical and projectional translation between two-dimensional graphics and three-dimensional reality. In the second half of the twentieth century, this fascination led to the development of the possibility of simulating three-dimensional reality in a virtual environment. This conveniently removes many obstacles between a sheet of paper and bricks and mortar: now both exist as a by-product of the digital simulation. Nowadays architecture is more favourably imagined and communicated through the domain of the digital simulation than purely through drawings or buildings. The elaborate manipulation of geometrical forms made possible by the digital environment can be seen commonly in trends of designs considered to be at the forefront, justified by concepts described as the morphogenic, the prototypical, the genealogical and the evolutionary. Furthermore, the digital environment allows impossible angles from which to view, and digital animation can offer a dynamic fly-through experience. These all constitute our contemporary sense of perception of architecture.

Architects believe that this process delivers new ideas and new constructs. What they do not necessarily realise is that these images and eventually the physical structure coming out of the virtual simulation are more representative of the sophistication of this technical process, instead of being representative of a genuinely original idea. The public is a mass that is perceptually trained to be acutely aware of the effect of the simulation, yet ignorant of the relevance of geometrical manipulation.

This increasingly internalised system of visual representation in architectural design means that it is more and more difficult for people outside the architectural profession to understand architectural drawings. The information and significant ideas conveyed by these drawings only make sense if one has the necessary disciplinary knowledge to decipher specific systems of line drawings and projections. The development of architecture in the West since the Renaissance

has largely been shaped by this reciprocity between the process of design as an intellectual exercise and the rigorous method of embodying the complexity of ideas in a system of representation through lines and projections. One gains sophistication through the other. This system of representation continued to dominate the practice of architecture and the nature of design well into the Modern period in the twentieth century. This somehow explains the underlying *rationale* to Le Corbusier's sentiment: how the plan and section is privileged and the rendering is subordinate. He says the plan is the basis, and without the plan, there is only the sensation of disorder and wilfulness (Le Corbusier 1989: 48).¹⁰

This general feeling of esteem towards the abstracted scientific representation (plan, section, and axonometric) and disdain towards the realistic or pictorial representation (artist's impression, rendering) is still prevalent across the field of architecture even now. For instance, in schools of architecture such as the Architectural Association (AA) in London that pride themselves in being cutting-edge and critical, tutors of certain design studios would actively discourage students from making renderings of their design project.¹¹ If students make a computer model, it is better to present it bare as wireframes or hidden lines. Attempts to simulate lighting and shadows, material textures and adding traces of human habitations in a photo-realistic setting would be objected to. Below are examples of drawings produced by a student, William Hailiang Cheng from AA diploma unit 5 during the year 2004-05. This is a unit with a particular focus on the use of mathematically based computer software as a way to explore the generation of form and spatial construct.¹² Projects by these students, as seen in Figures 11 to 14 on the next page and after, show a preference for line drawings by various techniques through different computer aided design (CAD) software to

¹⁰ Like many of the dramatic yet contradictory statements in this book, Le Corbusier first claimed that without the plan 'we have the sensation, so insupportable to man, of shapelessness, of poverty, of disorder, of wilfulness', and later on (1989: 51) to say that the plan carries in itself the very essence of sensation. In this way, he was able to keep sensation strictly to the principles of rational geometries and compositional orders, and away from irrational sensations that are ephemeral, mysterious or subconscious.

¹¹ This observation and the following examples of works from the AA school are based on a discussion in June 2005 I had with students who graduated from Diploma Unit 5 led by George L. Legendre and the MA programme Landscape Urbanism. Both groups rely heavily on specific computer programmes to generate architectural forms and interventions. Despite their different design agendas, tutors from both groups strongly discouraged students from rendering those images that they generated through particular software programmes. George L Legendre's unit explored potentiality of super-surface by using mathematical/analytical models as parametric prototypes, and the Landscape Urbanism programme takes on the task of integrating techniques and modes of operation historically described as landscape design into the domain of urbanism.

¹² In the *AA Prospectus 2006-07*, George L. Legendre states concerning the Diploma Unit 5 studio brief that: '[...] we will restrict the scope of our preliminary explorations to the mathematical/analytic models that yielded the most promising (if still underutilised) prototypes to date. This year we will narrow down our trial objectives to the production of elaborate tectonic arrangements needed to sustain pragmatic architectural proposals.'

indicate layout, geometry, volumes, organisation, and structural and diagrammatic analysis.

If students use photographs from the site context or related reference sources to make a collage or montage, the preference is to select and crop these images and leave them visibly disjointed on the drawing in order to accentuate the contrast between the unfinished, suggestive quality of the design intervention as line drawings and the fixed certainty of photographic reality. The basis of this visual strategy implies a fundamental differentiation between the representation of the design idea and that of the contextual reality; they belong to separate realms, the faculty of the mind in opposition of the faculty of the experience.

This naturally leads to the conviction that a drawing of ideas should be enforced through representations of a more abstracted and geometrical nature, and should never attempt to simulate a realistic depiction through painting or photograph. The fear is that if the representation of ideas is too far entangled with the representation of reality, the design imagination would reach a premature finality. Then the project would lose its intellectual purity and the potential to develop further the internal complexity of the originating idea.

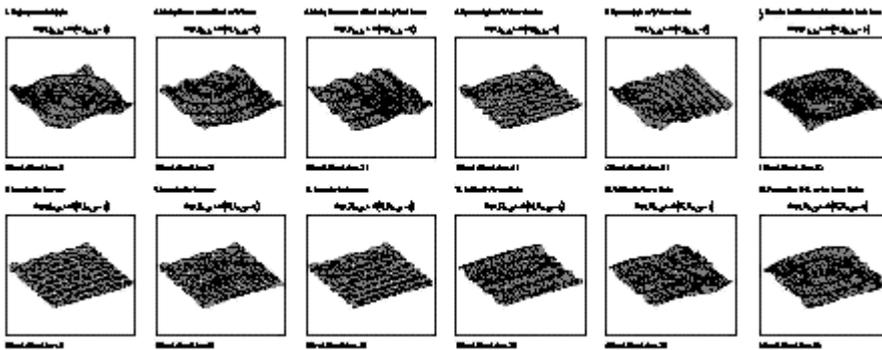


Fig. 11: Wave models generated from MathCAD (for AA Diploma Unit 5), Surf Gallery: An Extension for Tokyo Metropolitan Festival Hall (© William Hai-liang Cheng 2004-05)

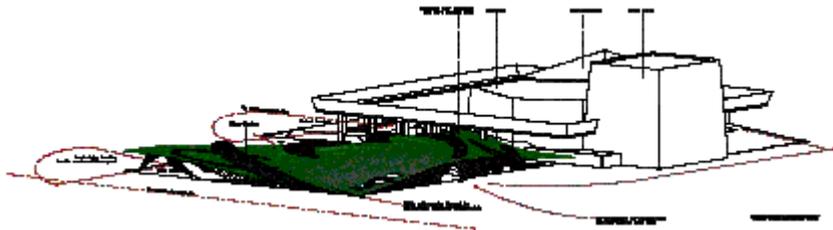


Fig. 12 Combination of wave models developed into building form and programme (for AA Diploma Unit 5), Surf Gallery (© William Hai-liang Cheng 2004-05)

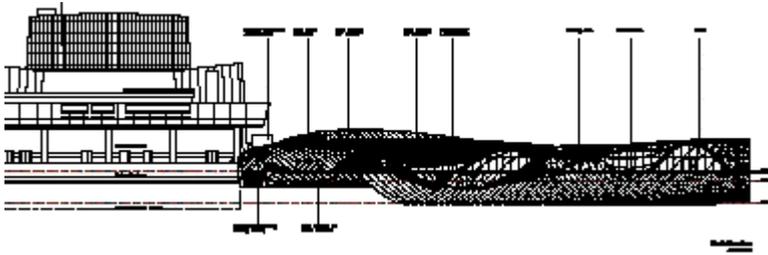


Fig. 13 Section (for AA Diploma Unit 5), Surf Gallery (© William Hailiang Cheng 2004-05)

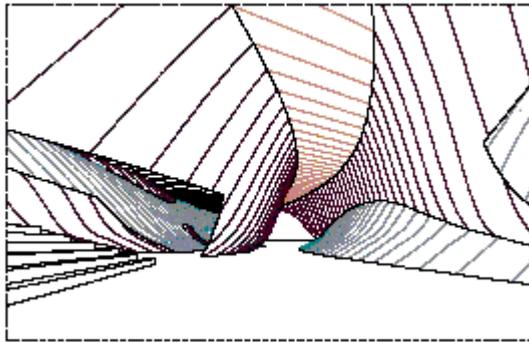


Fig. 14: Perspective interior view from digitally simulated model as wireframe (for AA Diploma Unit 5), Surf Gallery (© William Hai-liang Cheng 2004-05)

Given how much the architect seems to detest rendering, why is it still being generated frequently in design practices? This is because architects themselves are aware that drawings as part of the specialised system of representation, like those produced by students at the AA, are difficult to be understood by the general public without the necessary architectural knowledge. These are the people who may admire the aesthetic quality of the complexity of these line drawings, but they would not be able to decipher them. Despite their reluctance, architects need to establish other means of communication with the mundane world. As evident from the above examples of the praising and loathing of different forms of architectural drawings from the past to the present day, there is a clear reason why this 'other' means of representation is an aspect largely ignored in architectural history and critical discourses.

Photo-Reality: the Truth and the Deception

Why not? Isn't it great? There always comes a point where you don't know whether you're lying, or whether what you've invented is more truthful than you are yourself (Musil 2001: 21).¹³

¹³ This is a delicious and manipulative point in Musil's novel where Törless is tempting Beineberg into the pleasure of deception.

So far, I have used the word 'reality' interchangeably between contexts of both 'the reality in front of our eyes' and 'the reality captured on photographs'. Yet they are in fact two very different realms of 'reality as views' and 'reality as images', although in the popular mind, given the proliferation of photographic images in every aspect of our contemporary lives, these two realms are believed to be one and the same thing. Going back to my previous discussion on the nature of the rendering, the Image-World where reality is understood as photo-realistic images is entirely different from the World understood through being the subject of images.

In this part I would like to further investigate the peculiar characteristic of the rendering which allows co-existence of both the view and the vision in an image, and different 'realities' that a photo-realistic image intends to offer.

What makes a rendering so immediate to common viewers? This is largely because it takes advantage of the way we trust photographs, the innocent snapshot that captures how reality should appear. I said 'should' because our perceptual mechanism has been programmed to accept photography, being by far the most popular visual medium, and to believe its instantaneous documentary power to represent reality in the most truthful way. Yet what better way to deceive us than photography? In 1960, Yves Klein constructed a famous photomontage, 'Leap into the Void', showing himself leaping with arms wide-stretched from a high boundary wall along a small anonymous country lane with a cyclist in the background. At the first instance this image appears to be true because it is like a casual photograph. Yet upon closer inspection, it can hardly be possible for Yves Klein to have leapt off a wall at such a height and not have injured himself severely. The contradiction of this photo-realistic image could not be a more obvious demonstration of this manipulative power of photography to override our normal perception of reality.

For rendering to appear photo-like is only a disguise. It is to appear as a 'view' presented in a familiar way to our contemporary eyes, to conform to what is expected as a popular mode of representation, such as a photograph. In different historical periods, the popular mode of representation may be illustrations done in pencil or woodcuts, easel paintings in oil, or frescos on a wall. Nowadays, we all take our cameras and snap, and out comes the 'view', a flattened record of what we believe to be a record of reality. Some books on rendering techniques even go as far as to recommend strongly the necessary training of copying from photographs.¹⁴

But to appear like a photograph is not enough. The rendering needs to project a 'vision', a memorable impression of the design. Before the project is realised, it exists in the imaginary realm, so the task of the rendering is to merge the representation of this imaginary project with a realistic view. The rendering achieves a continuity between the illusion of the design and perceived reality. Camouflaged behind the neutrality of photography, the rendering is after all an artificial construct, a manipulated view of reality that is no longer innocent.

¹⁴ 'In the first stage, the aspiring renderer is encouraged to study existing settings through the unorthodox method of tracing or copying from photographs. In the second phase, the renderer is urged to develop the ability to translate features in photographs into three-dimensional models. In the third and final phase, the renderer is encouraged to bring idea and the reality together into one believable picture' (Forseth 1991: vii).

In other words, rendering is constructed so that it can cope with the enormous tension between the imaginary project and the reality of the context. However outrageous the idea may be, the image establishes this continuity with the familiar reality, not letting it collapse into mere fictions and phantasms. Therefore the final image accommodates the co-existence of both: the verging towards the common, quintessential, and nostalgic, and on the opposite end the visionary, futuristic, dreamlike, and surreal. Successful renderings keep the tension of an incongruous proximity between these two sensations and skilfully prevent the image from toppling onto either side of them.

The mounting of this tension in the rendering can be of strategic importance, such as the provocation found in Superstudio's 'The Continuous Monuments' series presented in 1969, showing how the contrast between an unusual architectural form and a familiar photo-realistic background is smoothed over to appear as a coherent visual entity.¹⁵ When these two parts, the anonymous scaleless geometrical form and the picturesque Swiss town St. Moritz against the Alps, are separated, neither appears to be anything radical. Yet when Superstudio slices open the scenic photograph and inserts the megastructure, the contrast is extraordinary. The rendering exercise further adds shading on the surface of the megastructure in accordance with the direction of light in this scenic context, and the shadow of the form on the ground or reflection in the water. A smooth visual transition is established between the presence of the drawn megastructure and the photo-realistic sense of the context. One can interpret this image as both familiar and fictional, quintessential and provocative.

As part of the avant-garde legacy, the radical vision of Superstudio remains as graphic renderings. If their ideas had been presented in plans, sections or any other means of projected line drawings, they would not have been able to stir such a sensation of shock and intrigue in the imagination of the viewer. In other words, the architectural statement can only be successfully conveyed by means of rendering, where the tension of an incongruous proximity between the familiar and the fictional is kept and where the provocative vision arises.

More examples of rendering which use similar strategies of visual provocation to convey visionary architectural ideas can be found before the invention of photography. In the eighteenth century, Claude Nicolas Ledoux made a series of drawings to impress upon his audience the design of the ideal city of Chaux, centred around The Royal Saltworks at Arc-et-Senans (1774-1779), as a template of Utopia. I would describe these as 'renderings' because they share similar characteristics to those images I analysed above. Instead of using photography, architects in Ledoux's time used realistic depictions of landscapes or cityscapes by manual draftsmanship in pencil, watercolour or oil painting as the background setting of their drawings. Ledoux's renderings persuasively handle the illusion of his architectural design, expressing both symbolic massing and practical functions, in a harmonious juxtaposition of a familiar and picturesque landscape, complete with animals, lush vegetation and active people. Despite the change of technical tools from manual in Ledoux's time to digital means in our own, the desire to

¹⁵ This image is taken from *The Changing of the Avant-Garde: Visionary Architectural Drawings from the Howard Gilman Collection*; Museum of Modern Art exhibition 2002 collection catalogue, New York.

satisfy both the familiarity of a view and the provocation of a vision by constructing a rendering of the project remains the same.

So far we have surveyed a number of examples of images that attempt to convey significant architectural ideas through a process of simulating a realistic view of the project in its context. Such is the task of rendering which operates quite differently from the representation of ideas in the plan expounded by Le Corbusier and in the grid of projection envisioned by Alberti. Renderings are not a result of abstracted geometric investigations, compositions of tectonic details, or the organisation of spatial sequences. These renderings start by acknowledging those images that are already familiar in our minds, given by social, contextual, and personal conditions. These are collected as significant subject-matter of physical environments that existed already, with which the design must interact visually. The designer of the image makes use of these stockpiles of visual conventions to construct a vision that surprises us, superseding our expectations of a normal physical environment. The final presentation must have some sense of visual coherence, by means of a refined photorealistic view, to convince us of a reality that is not yet there and never will be there. Superstudio and Claude Nicolas Ledoux are both masters of such deception of which the rendering is capable.

But the impact of the rendering does not stop at the point of the architectural project. The co-existence of both the realistic view and the fictional vision as a new simulated reality problematises the distinction between experiences of natural reality and experiences of artificial photo-reality. Rendering cuts through the *naïve* trust we have instilled in photographic images because our perceptual framework is confused by conflicting messages: 'This must be real!' and 'This cannot be real!'

Through the eyes of the perceiver, these images not only leave impressions of the physical form and details of the object of design, but also the speculation on transformation that the design will bring to its physical context if it is realised. Rendering puts forward statements that seem to breach political, social or ideological matters, tangling with the larger domain of human expectations – dreams, hopes, desires – beyond the value of the design as a specialised discipline. This capacity of rendering to address issues that are clearly outside the delineation of an architectural design is something well-understood by avant-garde architects. The immediacy of communication as well as the potential for visual provocation allow these architects to use renderings to comment on or to criticise ideologies of the discipline or the society at large.

At this point, I will turn to investigate another context where the production of such rendering occurs at a point when the architectural idea has not yet reach a point of certainty. Although the design is not ready to have a definite visual presence, it is forced into an image by a sophisticated mechanism of photo-realistic rendering production. This is where the rendering process is accentuated to a point of crisis in the design, where the image reinserts itself back to influence the outcome of the design process. The hypothetical projection of the rendering is hijacked and fed back into the loop of design prematurely; instead of saying 'it could be like this', the rendering dictates over the design to say 'it must be like this'.

In the Chinese architecture market, the rendering is a point of eruption where the vision and the statement escape the control of the design. This has significant consequences in how architecture is developed, valued, and criticised in Chinese

context. This hypothetical reality structured by rendering convinces the general public that it stands in its own right and becomes the marker by which the eventual physical construction would be judged in accordance. The effectiveness of rendering is potentially in competition with the effectiveness of the design at the moment of realisation. The rendering runs ahead of the design – is the promise delivered through the image or the built reality?

Dictation of the Rendering Upon the City

Resemblance serves representation, which rules over it; similitude serves repetition, which ranges across it. Resemblance predicates itself upon a model it must return to and reveal; similitude circulates the simulacrum as an indefinite and reversible relation of the similar to the similar (Foucault 1983: 44).



Fig. 15: Rendering, Taipei 101 [台北國際金融中心]
(© C. Y. Lee Architects [李祖原建築師事務所] 2001)



Fig. 16: Photograph of the Taipei skyline and Taipei 101 (© Doreen Bernath 2003)

Figure 15, above, is a rendering of the tower of Taipei 101, which was produced to impress upon the public that this project would be the world's tallest building. The image's point of view is from a position which is much higher than all the other

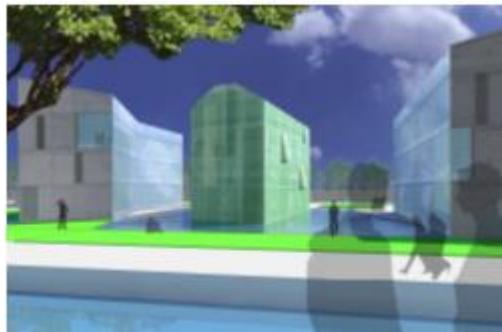
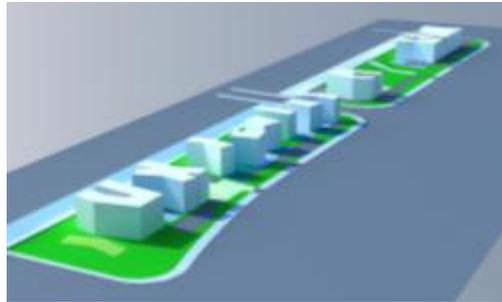
buildings except Taipei 101. This exaggerates the impact of the building's height and dwarfs the rest of Taipei. A dramatic sunset is rendered across the sky.

The second image, Figure 16, is part of a panoramic photograph taken by me on a hill behind my parents' flat. I took this photograph without knowing that a rendering had been constructed from almost exactly the same point of view for the Taipei 101 project. My photograph shows that the tower was still under construction and its height did not quite match what had been indicated by the rendering. Despite this small discrepancy, the set-up of both images, one an artificially created illusion and the other a casual snapshot, is almost identical. Two representations of the project successfully converge in our perception as one singular impression. In other words, the rendering and the actual photograph combine to form a seamless translation of the project in our mind from simulation to reality.

The resemblance of these two images is not coincidental. Technology has provided us with a domain of visualisation in the simulated digital environment to perceive all reality. All designs can be presented, analysed, manipulated and reproduced through digital simulation, hence what previously required a leap of imagination between graphics representation and final construction now finds a resistant-free transition within the simulated reality. Rendering represents a point of finality of all possible projection of the project, to which the design and building process has no choice but to follow.

I had the experience of working with one of the rendering companies in Shanghai recently for a new development project. The production involves a streamlined process of three technicians and computers taking on three distinct tasks: the construction of the 3D digital model; the simulation of texture and light on buildings required for particular views; and finally the addition of landscape, background, sky, vegetation and people, using Photoshop to smooth the image with a heightened photo-realistic effect. The process can be seen on the next page. Figure 17 shows the building when it was still at a phase of preliminary massing and site layout, without knowing clearly the internal arrangement and construction details. Figure 18 is how the image appears at the beginning of the Photoshop process, and Figure 19 shows the final version presented to the client. This process took about three full days working with technicians at a time when we were about ten days into the project. Then three weeks later the whole process was repeated again to produce a modified set of images for the next client presentation.

The design team had been highly aware of the immediate need to design through these images, instead of through plans and sections. On the image, building shape changes, roofs were given angles, windows were located, the building envelope either become more transparent or more solid or more reflective. The judgement criteria are based on the feeling of the whole image: does it look beautiful, does it project the right mood and does it trigger the desired associations in the mind of the viewer? Each scene presented in the rendering is a story in itself, which does not necessarily relate to scenes in other parts of the project. In this process, first of all, the architect is relocated to work at the rendering company to direct the outcome of each image. Secondly, the architect is removed from the instrument of image-making and relies on verbal instructions to the technicians to make the desirable changes. Thirdly, the choice of changes is limited to what is



Figs 17, 18, 19: Three-stage process of digital rendering of project by O4workshop, Shanghai (© O4workshop 2006)

available in terms of tools to control effect in the software and the stock of background images (sky, water, vegetation, material textures, etc.) for visual manipulation. The language of design is based on impressions of already-flattened images, which is very far from the traditional concept of organisation through line drawings and orthographical projections. The organisation of functional and spatial layouts is subordinate to the consideration of the effect of the image.

This is how in general projects are developed in architectural practices in the contemporary Chinese context. The architect is highly dependent on the efficient and effective image-production of rendering at all stages of the design. Many Western architects working in the Far East would not hesitate to admit that this demand for renderings at all stages of the design process has in some way dictated a certain outcome of the design that is beyond the control of the designer. This working process shows an intrusive role that renderings plays in the design process. In the fast construction pace of Taiwan and China, the expectation is to achieve what is promised in the rendering, instead of the plan. This phenomenon

of the production of renderings poses a challenge to the narrowly-defined role of renderings in the design process common to Western practices, as previously discussed.

Crystal Digital Technology (水晶石數字科技有限公司), established in China in 1995, is one of the best-known companies that produce 3D graphics of construction design, from renderings to animations.¹⁶ They began by providing 3D graphics services for the architectural design profession, and went on to develop digital multi-media technologies including movie and TV shots, interactive procedure development and internet image application. Their portfolio includes the project of the restoration of old Beijing city in 2002 for the first time using 3D CG technology, and this was presented in a digital image exhibition called 'Memory of Beijing City'. In 2004 they became the designated 3D CG provider of the 28th World Heritage Conference. Recently they have been appointed to provide 3D animation, graphics production and digital multi-media presentation work for all 2008 Olympic-related projects in Beijing.

Crystal Digital Technology has been so successful and so much in demand that they are often in situations where they would produce images for competing teams on the same architectural competition. For instance, in the CCTV international competition, Rem Koolhaas and Toyo Ito both commissioned Crystal Digital Technology to produce renderings for their designs and at the end they won first and second prizes respectively. Since so much design is done through the medium of digitally simulated 3D graphics, such as the process I described above with the three-stage rendering process, the sheer technical capability of this process overwhelms the extent of our architectural experiences and imaginations. The more sophisticated the techniques of digital simulation, the more it saturates our perception and replaces other natural means of sensual and physical experience. In other words, architectural design can emerge, presented, experienced, and valued solely through the domain of digital 3D simulation. In April 2004, Crystal Digital Technology began to hold competitions for Online Architectural Design of the Crystal CG Cup. Many thick volumes have been published to honour projects with the best simulated 3D graphics, which is quite significant within the field of architecture in China, and also to a certain extent abroad.

The traditional understanding of a medium of representation can no longer provide an adequate platform to explain the way digital 3D graphics have the power to substantially reconfigure our memory and perception of the past (such as a no longer existing city wall) and the expectation for the future (such as a hypothetical building project). Images produced by companies like Crystal Digital Technology are infiltrating all corners of the city: on advertisement signs, propaganda posters, on billboards, glossy magazines and television. Rather than being the by-product of the design process, the presence of these images in turn sets conditions upon the outcome of urban transformations.

Walking around Shanghai, to me it all seems satisfactorily modern, complete with all the necessary elements of a prosperous urban development: the gleaming

¹⁶ Information on Crystal Digital Technology Co. Ltd is based on the company profile taken from its website <http://www.crystalcg.com/> (August 2007).



Fig. 20: Crystal Digital Technology (© Crystal Digital Ltd, China 2007)

tower blocks, the tree-lined streets, the elevated highways, the public squares and gardens, the institutional and the monumental, the buzzing markets and the gated residential areas. This is a somewhat familiar urban backdrop, so far as it has successfully projected an idealised image of progress. Yet there is a disconcerting sense of unfit; quite quickly one notices the oddest happenings and practical readjustments of everyday life behind the projected image.

The integrity of each urban scene – for instance, down the commercial avenue, along the river bank, the central plazas and parks – breaks down when I turn the corner. I can almost sense the ‘edge’ of the image, the boundary from one collage to another. If the relative movement of the person and the city is reversed – let’s say the city moves and the person remains stationary – then the effect will certainly be akin to a parade, a procession of setup scenes, one more elaborate than the next (see Figures 21 to 24 on the next page).

Each scene proclaims to be the most fanciful progressive icon, yet it remains a fragment that does not relate to other scenes. As shown in the images collected in Figure 25 (page 64), points of cracking and disjunction are everywhere: at the foot of these new business towers, in the same physical structure, a tiny room full of dirty equipment happily carries on its car-repair routine. Next door a shop is enveloped in steam from a bakery run by immigrants from the countryside, drying their towels on the stylish glass balustrade of a new residential complex. A sophisticated and



Fig. 21 (left): Rendering of Shanghai cityscape

Fig. 22 (right): Photograph of Shanghai cityscape (© Doreen Bernath)



Fig. 23 (left): Rendering of new highrise project Pudong, Shanghai
(© Crystal Digital Ltd)

Fig. 24 (right): Photograph of Pudong, Shanghai (© Doreen Bernath)

modern system of traffic circulation has been speedily implemented but a cyclist wanders dangerously into eight-lane traffic completely ignorant of the rules and the danger. The superimposed image is disrupted by another set of unrelated, entirely local and ordinary behaviours; the carefully constructed cityscape juxtaposed with the careless humdrum of everyday activities and physical adaptation. The city projects itself as a visually persuasive patchwork, a super-size manipulated collage across all scales of perspectives, stretching the extremes of illusions forced to become real.

There is an undeniable similarity between these visual graphics and physical structures. What they represent is less concerned with the idea of design, but with the capability of the simulation process to present the design with a desirable effect. With reference to Foucault's differentiation between 'resemblance' and 'similitude', the propagation of the rendered effect across visual graphics and physical structures shows the repetition of the similar upon the similar. This system of representation no longer follows the traditional hierarchy of 'less faithful copies' that attempt to resemble an original 'model' of authority. Instead, the repetition itself justifies endless repetition, because both the visual graphic and physical structure now occupies the same representative status in relation to the dominance of the rendered effect. All representation approaches, in Walter Benjamin's words, a perception whose 'sense of the universal equality of things'

overrides the aura of the original creative work. The urge of the contemporary masses to consume reproductions of an object in its likeness that Benjamin observed now dwells comfortably and effortlessly in the domain of digital simulations.



Fig. 25: Photographs: Urban transformation and people's everyday life in China
(© Doreen Bernath)

The consistent rendered effect that turns the visually ordinary to the extraordinary forms a repetitive cycle of reproduction. This process of reproduction through the realm of digital simulation concerns itself not with the uniqueness of each moment

of design originality, but with rupture of the 'simultaneous collective experience'.¹⁷ Take the cityscape of Shanghai as an example again; upon closer inspection, each building strives to be different from others, and varies greatly in its appearance, from its volume to its surface. Since this spectacle of difference is already promised by the effect of visual graphics prior to the existence of the building, the similitude lies in the repetition of the difference. In other words, no matter how the building object appears at the end, a consistency is found through the simulation of a perceivable quality of difference. The multiplicity of differences verges onto the repetition of a universal sense.

The analysis of how renderings are constructed tells us that these images share a consistent visual quality through the repetitive use of familiar stereotypical elements and the generation of a desirable extra-ordinary effect. This is where the affirmation of this 'sense of the universal equality of things' is found, and it is the anticipation of this sense that I called the 'dictation' of stereotypes and the extra-ordinary. The digital environment allows first of all the fragmented categorisation of visual perception, from the different skies, material textures and activities of people which can be obtained from the stock of digital images within the computer. Secondly, the simulation process allows the re-composition and manipulation of these images to create a new illusion. Benjamin's study on photography and film already reveals the technical capability of the cameraman to penetrate deeply into the web of reality and obtain pictures that are 'multiple fragments which are assembled under a new law' (Benjamin 1999: 227).¹⁸

What is this new law? Walter Benjamin more than half a century ago already reminded us of the need to change the way we understand art in the age of mechanical reproduction. In the age of digital simulation, the concern with the object of art is replaced by that of the repetitive reproduction of simulated visual effects. By studying conditions in which rendering has been raised to such a dominant position within architectural practices, I have argued for a critical reevaluation of rendering-based visualisation in architectural design process. The shock effect offered by renderings as a form of architectural experience that dictates our expectations of physical reality overthrows many traditional understandings of the work of architecture. It is simulation by 3D graphics, rather than the delineation of plans and orthographic projections, that proves to be much more effective in serving architectural projects' political, social and disciplinary purposes.

Conclusion: rendering and ideology

Historically it was the rising dominance of two-dimensional graphic reproduction in the West which brought into question the representation of a distinct three-

¹⁷ 'Painting simply is in no position to present an object for simultaneous collective experience, as it was possible for architecture at all times, for the epic poem in the past, and for the movie today' (Benjamin 1999: 228).

¹⁸ This is the part where Walter Benjamin compares the difference between the painter and the cameraman with that of the magician and the surgeon. The important point is the loss of the totality of the object of observation, which is replaced by fragments as result of mechanical penetration.

dimensional physical reality. Now the underlying principle of this system of representation committing the design idea to graphic images has been overridden by the immediate availability of virtual simulation. Since simulated virtual reality allows manipulation of the design object at every moment, the object can transform from a simple sketch into a final photo-realistic appearance very quickly. The visualisation of the design object can oscillate back and forth repetitively. The implication is the dissolution of the traditional design-staging process that guides the project development gradually from simplicity to complexity. More significantly, this dissolves the authority of the design idea that is driving the development through design stages. The representations emerge to supersede the design. These simulations come to haunt the designer, telling him or her that this is how the project will appear at the end, before it can be imagined by the designer.

When renderings are translated into buildings, the process demands that the building should approximate to the image as closely as possible, hence producing physical urban scenes that only make sense if they are read as images. This is where the operation of renderings is not confined to simulations in the digital environment, but dictates the physical consequences of design. Between these two forms of manifestation the same organisation of human perception applies. Foucault's idea of 'similitude', a repetitious cycle producing likeness upon likeness that is found in modern system of knowledge, can be used to explain what can be observed in this phenomenon of repeated sameness from images to urban environments.

To interpret the proposition by Walter Benjamin of a new law that reassembles the multiple fragments of modern lives captured by the camera lens in the context of China, the mechanism of rendering is illuminating. In this concluding part, I will briefly discuss the arising socio-political function of the reassembling of stereotypical visual fragments through photo-realistic architectural renderings in contemporary China.

In the case of China, from rendered images of architectural projects to photographs of finished buildings, a whole mechanism of proliferating visual information through today's mass media is projecting a consistent message – the ideology of modernisation and progress promised by the current 'Communist' economic agenda. The effectual nature of renderings, the combination of popular imageries with the promise of the extraordinary, serves well the demand of Chinese central government's propaganda campaign at the core of Communist political agenda since the Mao era. To be proliferated like propaganda images is to assign a symbolic and social role to architectural renderings, aside their practical function within the design and construction industry. The perceptual sense of contemporary Chinese society has long been trained to recognise specific visual elements that signify specific political meanings, such as the presence of machines and labours symbolising the revolutionary spirit and the idealised modern cityscape as a sign of Communist development. While the depiction of manual labour in the countryside is a stereotypical visual element common in the Maoist propaganda campaign, it had been replaced by shiny architectural high-rises and elevated road networks since Deng's era of economic reform. The process of rendering allows the smoothing over of the realistic and the fantastical, which constructs an illusion of a historical-futuristic continuum necessary for the control and fine-tuning of the ideological agenda within the political hierarchy of Chinese government. The

presence of these rendered images visible everywhere acts as an assurance to society that economic development is shaping a better living environment for the good of the people. It camouflages the disjointed and chaotic physical reality where daily negotiations and appropriations at the most mundane level of survival are necessary.

In recent conversation with architects Zhuang Shen (莊慎), a principle director of Atelier Deshaus (大舍建築設計事務所), and Zhao Cheng (趙澄), a principle designer of A+VA Architects (建言建築設計有限公司), both based in Shanghai, they pointed out the crucial role that renderings play in the presentation of design projects to local or city government to gain official approval.¹⁹ These renderings have to be of certain quality and style, and are often the determinant factor whether the project will be accepted or rejected. The photo-realistic image and its associated values, meanings and scenarios must appeal to the subjective judgement of those in charge. These officials in most cases are not familiar with specialised architectural knowledge; therefore their understanding of the reasoning of the design is limited. They would prefer to read realistic images instead of the more abstracted specialised drawings. This is where renderings are the most convincing means of visualisation: its deceptive power directly transmits an idealised image of a project where specific symbolic associations can be strategically integrated. In support of these key renderings, architects would endeavour to make verbal references to popular imagination, nostalgic memories and traditions in line with Communist Party ideology, in order to stir a favourable reception from those in charge. More objective questions of whether the layout, details and performance of the building satisfy building regulations and policies are considered secondary; these are less of a ground of dispute than those projected by renderings.

Yet the proliferation of renderings is not only sustained by demands arising out of the above socio-political condition in China. The fact that the rendering industry started off as supplementary to architectural practices now has grown to become independent and capable of running architectural competitions in the virtual digital environment has deep consequences at the core of architectural practices. Renderings determine the way design projects are exposed to the public outside the architectural discipline; they act as indicators of how projects are communicated and judged. It is the ideological and symbolic content of the rendered image that is of concern, instead depending on a value system determined by the design profession, as highlighted by the Chinese architect's experience of dealing with government officials and clients spoilt by photo-realistic images. After all, an architect should be trusted as an independent specialist, a position well-established within the Western intellectual tradition. To be esteemed as a 'good' architect is to foster a consideration of design that remains resolutely different to projects generated independently by rendering companies, which is a point stressed by Zhuang Shen along with many other architects in China.

Since techniques of simulation are shared globally, how much can one stretch the distance between these two intertwined productions, that of architects and rendering companies, remains a question. One can argue that there is little space

¹⁹ Interview with architect Zhuang Shen took place on the 25th of Sept. 2007 in his office. Conversations with architect Zhao Cheng took place throughout Aug. and Sept. 2007.

for such an autonomous position to develop in contemporary China precisely because the design profession lacks a ground of discourse outside socio-political demands. But, instead of stating this as a matter of criticism, I believe there requires an alternative perspective on architectural values which is not limited to the established understanding of the disciplinary framework that originated in the West. I believe that a second and more important condition exists behind the proliferation of renderings: a socio-psychological demand for systematised visual aesthetics which historically structures Chinese visual arts and perception of architecture. Such a continuity of a system of visual aesthetics cannot be defined as representational, since historically in China an architectural drawing is not meant to represent the actual building, the same way that a traditional drawing of bamboo does not represent the actual bamboo. Outside the representational framework, detaching the necessary link between the rendering and the architectural concept, the significance of the rendering process should be read differently: it is an instruction, it speaks by subjective inference and it emulates poetic associations traditionally taken up by calligraphy and ink painting. To decipher these complex issues demands a historical re-examination of visual aesthetics embedded in traditional Chinese creative thinking, which are important and complex arguments to be developed further in later research.

Beyond the context of China, the issue of originality in the realm of digital simulation through a powerful program called 'Photoshop', and consequently the world of simulated 'universal collective', in the sense described by Walter Benjamin as the invariable urge of the modern man for reproduction that erases the uniqueness of perception of the object of reality, are also important theoretical issues for ongoing investigation.²⁰

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²⁰ 'Every day the urge grows stronger to get hold of an object at very close range by way of its likeness, its reproduction. Unmistakably, reproduction as offered by picture magazines and newsreels differs from the image seen by the unarmed eye. Uniqueness and permanence are as closely linked in the latter as are transitoriness and reproducibility in the former. To pry an object from its shell, to destroy its aura, is the mark of a perception whose 'sense of the universal equality of things ' has increased to such a degree that it extracts it even from a unique object of means of reproduction' (Benjamin 1999: 217).

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