# Models and Virtual Space: Imagined Materiality

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Models and computer modeling often offer disparate ways of looking at space in the architectural marketplace. While one seemingly projects a more real and true image and the other a more manufactured and unreal image, both regard the conceptualization of representative space. The paper presents a view of the theoretical interface between analog and digital means of representation in the pedagogical world of the architectural studio, documenting the current state of events and our place in the virtual reconstructing of perception. We are now faced with the prospect of building and rendering a virtual world in which someday we may walk through, feel and experience. The imagined world may yet become an experiential yet nonphysical space, but in the interim we need to look at the cross between the "real" world of models and the "imaginary" virtual world. That is not to imply a persuasion of one means over the other, but rather a delving into the use of both in a non-hierarchical fashion in order to connect with the world order of the moment, with relations to past and future, reality and virtuality, atmospheric perspective and "optico-digital orthographics."[1]

## BACKGROUND

As, according to Benedikt, "theories . . . are attempts to sharpen our perception, to awaken us to the world and to make our existence in it more vital,"[2] this paper represents a documentation of the present time, the author's existence within this time and a look into the confusion and change erupting in our brains, our studios, our cities and our architecture as we move, transgress, transport and construct the new transurbanism and all its inherent parts. As with the rest of the world, I sit between reality and virtuality, scenographics and tectonics, the spatial and the antispatial. I am, as is my design studio, of my time, a product of my space. Educated in the time of the questioning of Euclidean geometry, I cannot let go of my past, my reality, my substance, but rather have become a hybrid, a potential replicant, a matrix for the coming transformation and morphing of man and machine, a cyborg. As the effects of the virtuality explosion are evidenced in our way of perceiving, our reactions to this new means of visualization will be apparent in how we do and function through the redesign of ourselves, our architecture and our cities. The city, as its inhabitants, is poised for the change as suggested by Novak,

> "The new urbanism, transurbanism, freed from a fixed geometry, will have to draw upon set theory and the physics of a quantum universe. As distant as this may appear from the city as we know it, the transphysical city will not be the postphysical city. As the prefix trans- implies, it will be at once a transmutation and a transgression of the known, but it will also stand alongside and be interwoven into that very matrix."[3]

I am in the midst of the change, not unwilling, but somewhat unconscious, reflecting a society in transformation, as is my studio as we move into the virtual. As my physical stature awaits the addition of technology and the machine, my architecture forms the basis of stability for the future morphing. "[W]e count upon our buildings to form the stable matrix of our lives. . ."[4] The architecture of the real will form the matrix of the new transphysical city.

As we pursue the changes inherent in the new world order, we cannot deny our past as it is the building block of the future. Just as our own bodies await the virtual reality machinery that provides the impetus to the man-machine of science fiction, our architecture will serve as the matrix and source of grounding for the virtual world. Architecture as the building block will remain grounded in the reality of presence, significance, materiality and emptiness[5] in order to provide the structure and base for an environment unbounded by natural forces. As we move from the Euclidean past toward our enlightenment, for the moment at least, let us not deny our past methods of perception and representation as they are the existence on which we form our new methods and means. For the present, architecture sits between past and future, the link between the two, the bridge of technologies, between prescriptive and predictive, and the transition between the perception of reality and the perception of messages.[6]

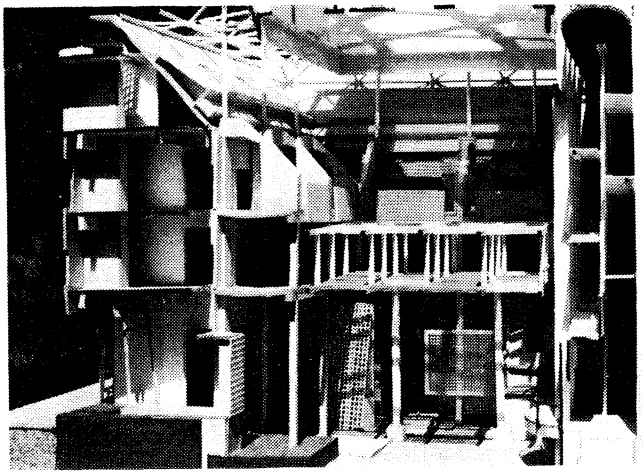

Fig. 1. Student A Split Architectural Model

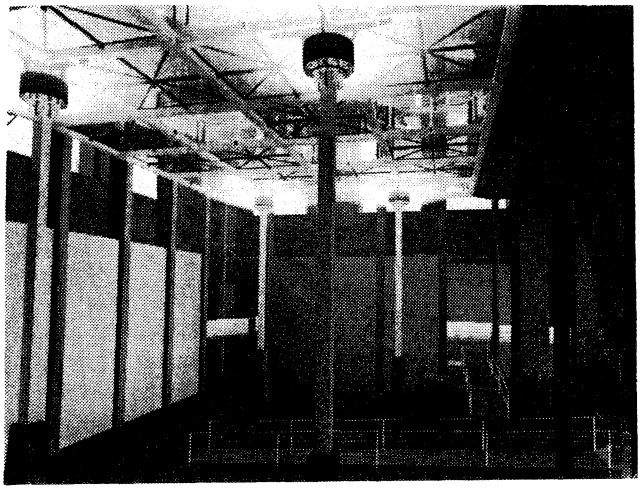

Fig. 2. Student A Computer Interior Rendering

Architecture is a representative profession. Architects do not build the true scale resultant of their labors, but rather they build, draw and render in miniature the representations of future constructed work. As miniatures the models represent a fantasy. This fantasy as related by Bachelard has connections to fairy tales and their dependence on the suspension of belief of scale, and is very much the initiation point for the creation of the virtual world. To paraphrase Bachelard from his writings regarding the miniature, if an architect looks through a microscope or a telescope, a model or a computer screen, he always sees the same thing.[7] As the direct product of the architect's work is a miniaturization, there is a need to place that representation in the scope between perception and construction to understand the implications of new means of representation.

As a representative profession, architecture must rely heavily on perception and the conceptualization of their perceptions to be translated by another. In order to translate their ideas, architects create miniature models of future reality underpinned by the brain's perceptual ability to define space through its own method of miniaturization, perspective. Visual perspective allows receding objects to become small in comparison with nearer objects. Relying on the brain's perceptive activity to define objects in space, architects have for millenniums used this translational ability to define large objects through their miniaturization. Visualization is linked with perspective through the way of seeing which;

> "involves knowledge of the object derived from previous experience, and this experience is not limited to vision but may include the other senses. . . . Objects are far more than patterns of stimulation: objects have pasts and futures; when we know its past or can guess its future, an object transcends experience and becomes an embodiment of knowledge and expectation . . ."[8]

The architectural model reminds us in miniature of the objects of our past. Through this visual memory the model becomes real.

Until the advent of film, this miniaturization of reality proved positive as architecture was defined as "a mediator between men and nature, or as a ritualistic representation of human society."[9] In the last 100 years the representational aspect of architecture and, in turn, the representational means of the architect have come into question. According to Tschumi, "Any new attitude to architecture *had* to question its mode of representation."[10] And it is here that we find ourselves and studios today.

Film is the prime form of representation in the modern world. It has changed our views and ability to define our reality. As film has created a fragmented and collaged world and shown us that reality is no longer representable, in the current world of mass media "space is no longer significant."[11] The representation of space within the computer in the present time is just a step toward the definition of virtual space, that unreal experiential space perceivable through sensory input, "as close as one can come in reality to entering a totally synthetic sensorium, to immersion in a totally artificial and/or remote world."[12] At such a time does the significance of this unreal space, unlocatable in either time or space, further unravel the insignificance of architectural space?

From models and renderings the tools of the architectural trade have moved into the realm of virtual imaginings. While all the tools are miniature representations of the ultimate product, one, the model defines space as deemed insignificant through mass media and the last, computer modelings define a filmed version and are thusly unreal. While models define spatiality, computer modelings, inherent in their sensory futures, define materiality. Both seem far from the truth, but scale models in miniature define materials only in a rudimentary sense, appliqué of realistic materials ruining the perspective nature of the representation, causing a jar in the perceptual reading of the total, the "indeterminancy of material detract[ing] from realness as much as fakery."[13] The computer model, on the other hand, with no real perceivable

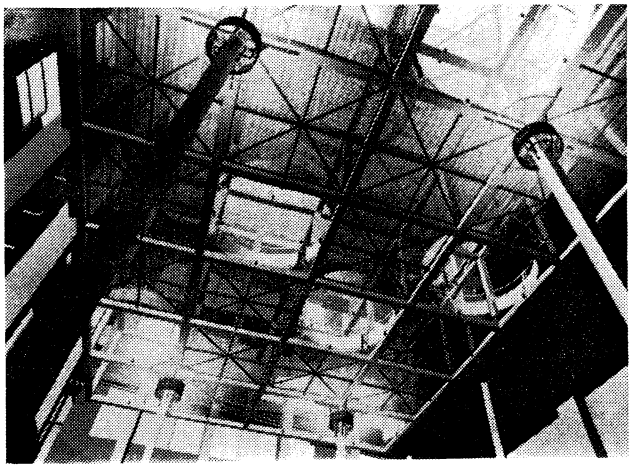

Fig. 3. Student A Computer Interior Rendering

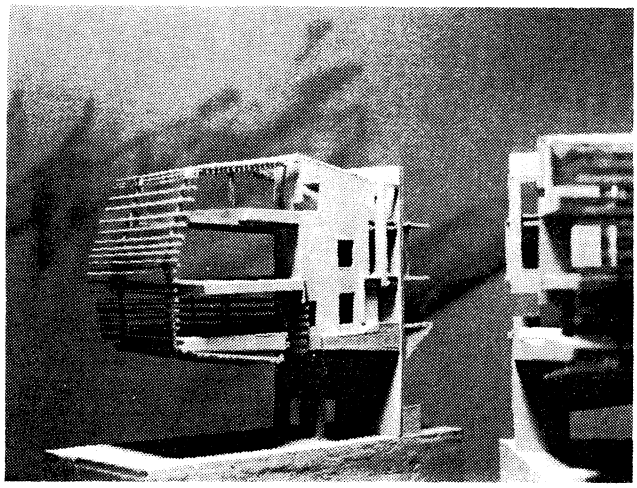

Fig. 4. Student B Split Architectural Model

space, defines the perspective sense of object through the tactile sense of materiality; using shadowing, atmospheric perspective and mathematical perspective. Scale models are just a reality we have come to accept over time as we will come to accept any new means of perception over time. Baulliard suggests the death of our existing means of perception through the progress of technology and mass media in the following, "[We live at the] end of the old illusion of relief, perspective and depth (spatial and psychological) bound to the perception of the object; it is the entire optic, the view become operational on the surface of things, it is the look become molecular code of the object."[14] We are now developing a manner of vision that will allow us to see beyond the spatial. Our past, though, still haunts us with the determinism of one point perspective.

Historically architectural education has relied on realistic renderings and models to convey a semblance of "real" to an otherwise imaginary game. The model became a stand-in for the architecture, as both are "built." As virtual environments continue to develop, we are able to explore both "real"—looking and "unreal"—looking imagined spaces within the computer. In academia the model, as representative of the architecture, now becomes "real" in its interpretation, as compared to the relatively unfamiliar ground of media architecture. But what happens when the imagined space of the virtual world is more visually "real" than the architectural model?

Concentrating on spatiality the two thesis projects that follow are examples wherein the students developed the design idea moving from the real into the imagined. Spatiality is articulated and defined by materiality, making the image real. The real architectural models of this studio were suggestive of form and structure, but only in a limited sense, of materials. The designs were then developed in terms of materials in the imagined virtual world, allowing the imagined world to become more "real" than the real world of the architectural models.

As a 5th-year studio, the course itself strives to create a reality out of highly imagined and imaginative solutions. As a precursor to virtual environments, the studio concentrates on spatial solutions. Stressing the definition of architectural space through articulation, the studio seeks creative response to current issues and theory. The students have taken the initiative to use the tools available and thereby have determined a greater reality from a less tactile medium through the articulation and clarification of architectural form in a virtual manner.

## STUDY

Evidencing our own fractured reality my 5th-year studio has developed their design projects using initial detailing and scale transition as the means to commence their projects. On the premise that one cannot analyze without a given, or that one cannot fully understand a program or site without a design, the students were assigned design problems related to their own course of study while they were researching and writing their thesis statements. While researching their theories, methodologies and programmatic requirements, the students were asked to develop their conceptual ideas in first; a detailed design of a room, and second; a model of a daylighting detail. As the room and daylighting detail have no relation to each other or the context of the undesigned project, they are intuitive gestures regarding the student's study of their particular programmatic concerns of theory, space and form.

Both of the example projects developed initially in the physical reality of model format. With an emphasis on the construction of architectural space, the models emphasize the physical concerns of the programmatic statements. The examples demonstrate the depth of development possible in moving from real world modeling into modeling programs. By concentrating on the viewers natural range of vision the students are able to emphasize the materials, details and light that inform the design and our sense of the tactile within the computer renderings. It is not the studio's intent to define virtual environments, but rather to allow the virtual environ-

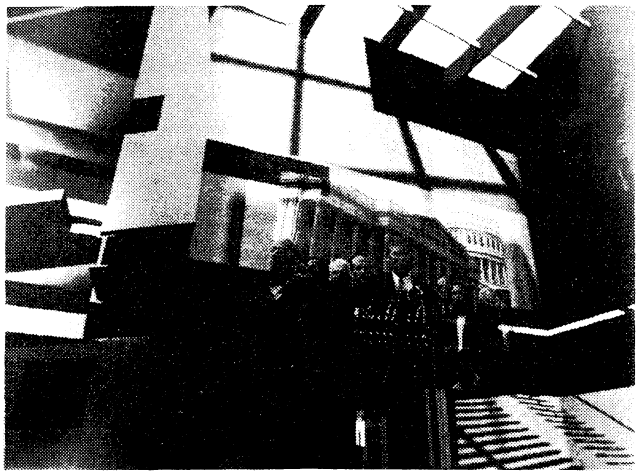

Fig. 5. Student B Computer Model

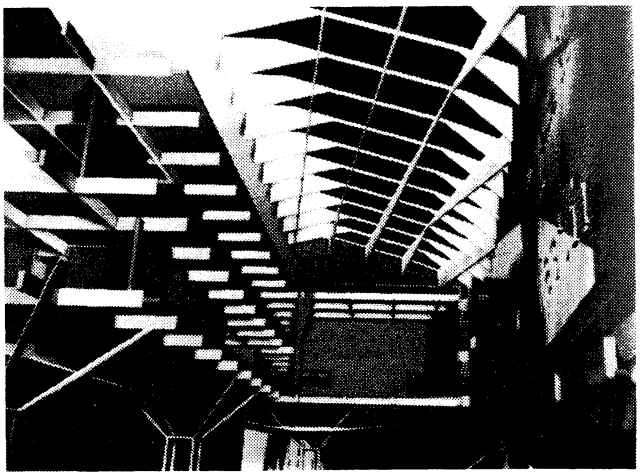

Fig. 6. Student B Computer Model

ment to clarify the materiality of the supposedly "real" construction.

Student A developed the schematic idea of a media museum as a highly developed model with an emphasis on the interior. This physical determination of modeled architectural space allowed the student to create a highly determined virtual environment in which the imaginary space became very real based on the addition of material, light and shadow as the space determinants. The student's objective was the rendering of highly realistic abstract space, concluding that with the digital revolution abstract space was as significant as "real" space. In the creation of a "real" abstract space, the student understood the link between the architectural model and the virtual model, writing within their thesis, "There are now two separate worlds in existence, one is the physical world of the inanimate matter, the other is the man-made digital world of the mind. The visual distinction between them will become ever more clear. . . ." Student A used *Trispectives Professional* to model the design and then imported over 300 individual models into *3dStudio R4* and finally imported the total into *3dStudio MAX* prior to printing.

Beginning with the site design, the Student B created a large site model. In order to work out the aspects of skin and structure, the student then developed a small part of his re-urbanization of a high school in an enlarged sectional model. Armed with the basic three-dimensional design criteria, the computer allowed the student to visualize a "real" interior space of high defined character as determined by light, structure and materials. The morphological aspects of the design were only suggestible in model form, but formally completed themselves in the computer visualization. Using *Form-Z* as the modeling and rendering program and *Photoshop* to augment the stylization of the product, the student was able to create real space within the envelop of an extremely imaginary building design. Student B used computer modeling to create the image of reality and materiality in an otherwise theoretical exercise. The project was the redesign of an existing high school in a very suburban location. The computer imagery augmented traditional architectural means of representation, giving the suggestion of a "real" existence through the computer modeling of light and materials not found in the drawings, models and axonometrics.

## CONCLUSION

While the architectural significance of modeling lies with its apparent rendition of reality and ability to provoke an imagined reality, the non-tactile atmosphere of virtual space can produce a clearer image of reality as defined through scale and material suggestion.

In this example studio the exploration and presentation methods were chosen by the individual students, those students who developed their projects significantly in virtuality were the students who created the most "real" or complete spatial intent. The simplicity of modeled rooms in virtual space without the distractions of views out of our natural peripheral vision allow the projection of our own selves into that space, making it very "real."

Our own reality may be called into question by our method of retrieval, mass media, the process of acquiring our new means of vision. This new means while currently based on our inherent means of visual perspective allows an altogether different vision of reality to flourish. Traditional architectural models create a miniature of reality based on spatial perceptions. Computer modeling, in contrast, suggests an image of space based on material designations. While the "real" space of models designates volumes through visual perspective, the non-real space of computer models is delineated through mechanical means of perspective, coinciding with our own perceptual abilities. While our own learned methods of perception are linked to Euclidean geometry and one point perspective, a new means of representation will be perceived only through our existing knowledge. Past visual perception grounded our architecture in reality while we now forecast a future space unbounded by time but bound by our means of perception. In our own space

and time visual perception and the perceiving of architectural space are amidst change. While our future is about this change, we still view it with eyes of the past. We cannot deny the real, prescriptive action, for the predictive illusion or abstraction of future reality.

## NOTES

[1] Marcos Novak, "Transmitting Architecture: The Transphysical City," *CTHEORY*, http://www.ctheory.com/a34-transmitting_arch.html, 1996.
[2] Michael Benedikt, *For An Architecture of Reality* (New York: Lumen Books, 1987), p. 74.
[3] Novak.
[4] Benedikt, p. 14.
[5] Ibid., p. 32.
[6] Ibid., p. 14.
[7] Gaston Bachelard, *The Poetics of Space* (Boston: Beacon Press, 1969) p. 172. Translated originally by Maria Jolas (The Orian Press, Inc., 1964) from *La poetique de l'espace* (Presses Universitaires de France, 1958).
[8] R. L. Gregory, *Eye and Brain: The Psychology of Seeing* (New York: McGraw Hill, 1966), p. 8.
[9] Aaron Betsky, *Violated Perfection: Architecture and the Fragments of the Modern* (New York: Rizzoli, 1990), p. 15.
[10] Bernard Tschumi, *Architecture and Disjunction* (Massachusetts: The MIT Press, 1994), p. 143.
[11] Betsky, p. 27.
[12] Michael Benedikt, *Cyberspace: First Steps* (Cambridge, Massachusetts: The MIT Press, 1991), p. 12
[13] Benedikt, *For An Architecture of Reality*, p. 48.
[14] Jean Baudrillard, *Simulations*. Translated by Paul Foss, Paul Patton and Philip Beitchman (New York: Semiotext(e), Inc., 1983), p. 143.